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FINAL REPORT OF OFF-SITE SURVEILLANCE FOR THE PIN STRIPE EVENT, APRIL 25, 1966

by
Environmental Surveillance
Western Environmental Research Laboratory

ENVIRONMENTAL PROTECTION AGENCY

Published February 1972

This surveillance performed under a Memorandum of Understanding (No. SF 54 373)
for the
U.S. ATOMIC ENERGY COMMISSION

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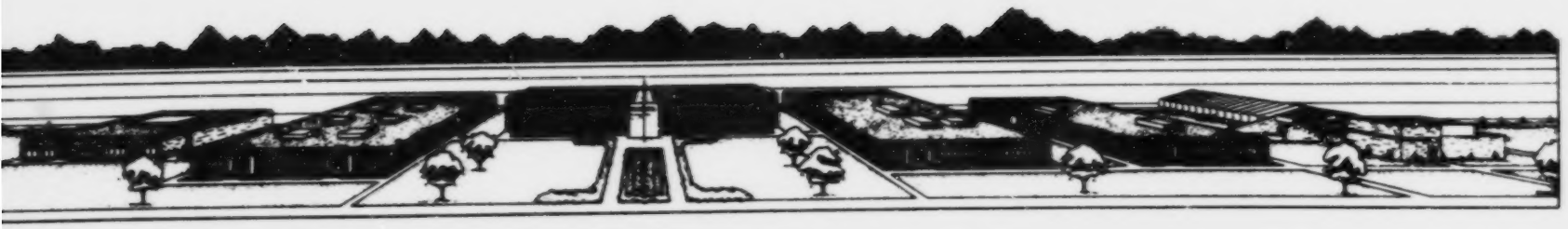

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*Note: At the time this work was performed the Laboratory was named the Southwestern Radiological Health Laboratory, and was part of the U. S. Department of Health, Education, and Welfare, Public Health Service, Environmental Control Administration, Bureau of Radiological Health.

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ACKNOWLEDGMENTS

Grateful appreciation is extended to the State Health Departments of California, Colorado, Idaho, and Utah for their assistance and cooperation, which was essential to the completion of the Surveillance Project.

Special appreciation is extended to the many off-site residents for their invaluable contribution of time in providing milk, water, and vegetation samples, and to those who agreed to participate in the *in vivo* thyroid analysis.

ABSTRACT

The Public Health Service provided off-site surveillance in support of the Pin Stripe Event conducted on April 25, 1966, at the Nevada Test Site. This support consisted of tracking the effluent, monitoring radiation dosage to the off-site population, collecting and analyzing environmental samples of air, milk, water and vegetation, and conducting an intensive public relations program for the off-site residents.

The maximum net gamma exposure rate measured by a portable survey instrument was 8 mR/hr. This reading was taken along a gravel road used only occasionally and well away from any continuously occupied area. The highest net gamma exposure rate measured at a continuously occupied location was 1.5 mR/hr. The above exposure rates were taken during cloud passage.

The maximum gross beta concentration found on an air filter from a continuously populated area was 25,000 pCi/m^3. This filter showed a ^{131}I concentration of 5300 pCi/m^3. The highest concentration of ^{131}I in a domestic water supply was 3850 pCi/l and the highest concentration of ^{131}I in a single milk sample was 4800 pCi/l. This concentration (4800 pCi/l) appeared three days after the event and was not representative of the levels of ^{131}I actually consumed by any off-site resident. Dilution of milk from this dairy with milk from dairies outside of the contaminated area, lowered the level of ^{131}I to a maximum of 100 pCi/l.

Off-site residents in the affected area, who volunteered, were counted for thyroid burdens in a mobile thyroid counting trailer. The highest total integrated dose was less than 300 mrad.

All levels of environmental radiation contamination were below presently accepted safety criteria as established by the U. S. Atomic Energy Commission Standards for Radiation Protection, chapter 0524, dated 8/12/63.

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INTRODUCTION

The Pin Stripe Event was an underground nuclear experiment conducted as part of the Department of Defense Weapons Testing Program. Pin Stripe was detonated at 1138 PDT, (1838 GMT) on April 25, 1966, in Area 11, at the Atomic Energy Commission's Nevada Test Site.

Radioactive effluent was accidently released. A cloud rose to about 5500 feet within 9 minutes after H-hour, and by H + one hour, the cloud had risen to about 10,500 feet mean sea level. Southwesterly winds carried the released material northeasterly into the off-site area. Seepage of gaseous fission products continued for several days following this event. Wind direction shifted approximately 180^{o} by April 27 and small amounts (less than 10 pCi/m^{3}) of fresh fission products were found on prefilters as far south as Indio, California. By May 4 all air sampling media were at background levels.

The subject of this report is the off-site surveillance provided by the Public Health Service (PHS) for the U. S. Atomic Energy Commission (AEC) in support of the Pin Stripe Event. Under a Memorandum of Understanding with the AEC, the PHS conducts a program of radiological monitoring and environmental sampling in the off-site area surrounding the Nevada Test Site and the Nellis Air Force Range. The overall complex of the Nevada Test Site and the Nellis Air Force Range includes the Nuclear Rocket Development Station and the Tonopah Test Range and for simplicity will be called the test range complex throughout this report.

I. OPERATIONAL PROCEDURES

A. External Exposure Measurements

1. Ground Monitoring

Ground monitors tracked the effluent cloud with portable radiation detection instruments. Each monitor was equipped with the following instruments: Eberline E-500B, Precision Model 111 Standard "Scintillator", and Victoreen Radector Model No. AGB-50-B-SR.

The Eberline E-500B has a range of 0 to 200 milliroentgens per hour (mR/hr) beta and/or gamma over four scales with an external halogen filled G. M. tube detector and a 0 to 2000 mR/hr gamma only range from an internal Anton 302 tube detector.

The Precision Model 111 Standard "Scintillator" is used primarily for low level gamma detection and provides for a range of 0 to 5 mR/hr over six linear scales.

The Radector has a range of 0.05 to 50,000 mR/hr over two logarithmic scales. This instrument uses an inert gas ionization chamber as the detector.

The above instruments are accurate to within $\pm$20 percent as calibrated with ^{137}Cs and can be read to two significant figures.

2. Aerial Cloud Tracking

A U. S. Air Force U-3A aircraft, manned by two PHS monitors equipped with portable instruments identical to those of the ground monitors, tracked the effluent cloud to assist in positioning

ground monitors. In addition to the instruments already described, the aerial monitors used a Victoreen Radector, Model II, (0.1 to 1,000,000 mR/hr range) and were also evaluating a Baird Atomic Gamma Scintillation Rate Meter Type NE-148A with a 0 - 3 mR/hr range in three linear scales. Two PHS C-45 aircraft containing various sampling and measurement equipment were also used as aids in cloud tracking. However, their primary purpose was cloud sampling and measurements to determine cloud size and content. The results of this surveillance are the subject of a separate report.

3. Exposure Rate Recorders

Eberline Model RM-11 exposure rate recorders were located at 23 stations around the test range complex. (See Figure 1). These recorders use a Geiger tube detector with a range of 0.01 to 100 mR/hr. Exposure rate is recorded on a 4-cycle log scale strip chart with a capacity of 30 hours continuous recording. These recorders are accurate to within $\pm$20 percent calibrated with a ^{137}Cs source.

4. Film Badges and Dosimetry

The PHS routinely maintains 65 film badge stations containing 5 film badges each off the test range complex and assigns one film badge to each of approximately 120 off-site residents. The badge uses Du Pont type 555 film. This film is accurate to $\pm$50 percent in the 30 to 100 mR range and $\pm$10 percent in the 100 to 2000 mR range. The lower limit of detection is 30 mR.

The PHS also maintains 21 stations which are equipped with three Edgerton, Germeshausen and Grier Model TL-12 thermoluminescent dosimeters (TLD). The detection range of this device is 5 mR to 5000 R with reading accuracy at $\pm$10 percent and with a standard deviation at the 98 percent confidence level of 2.83%.

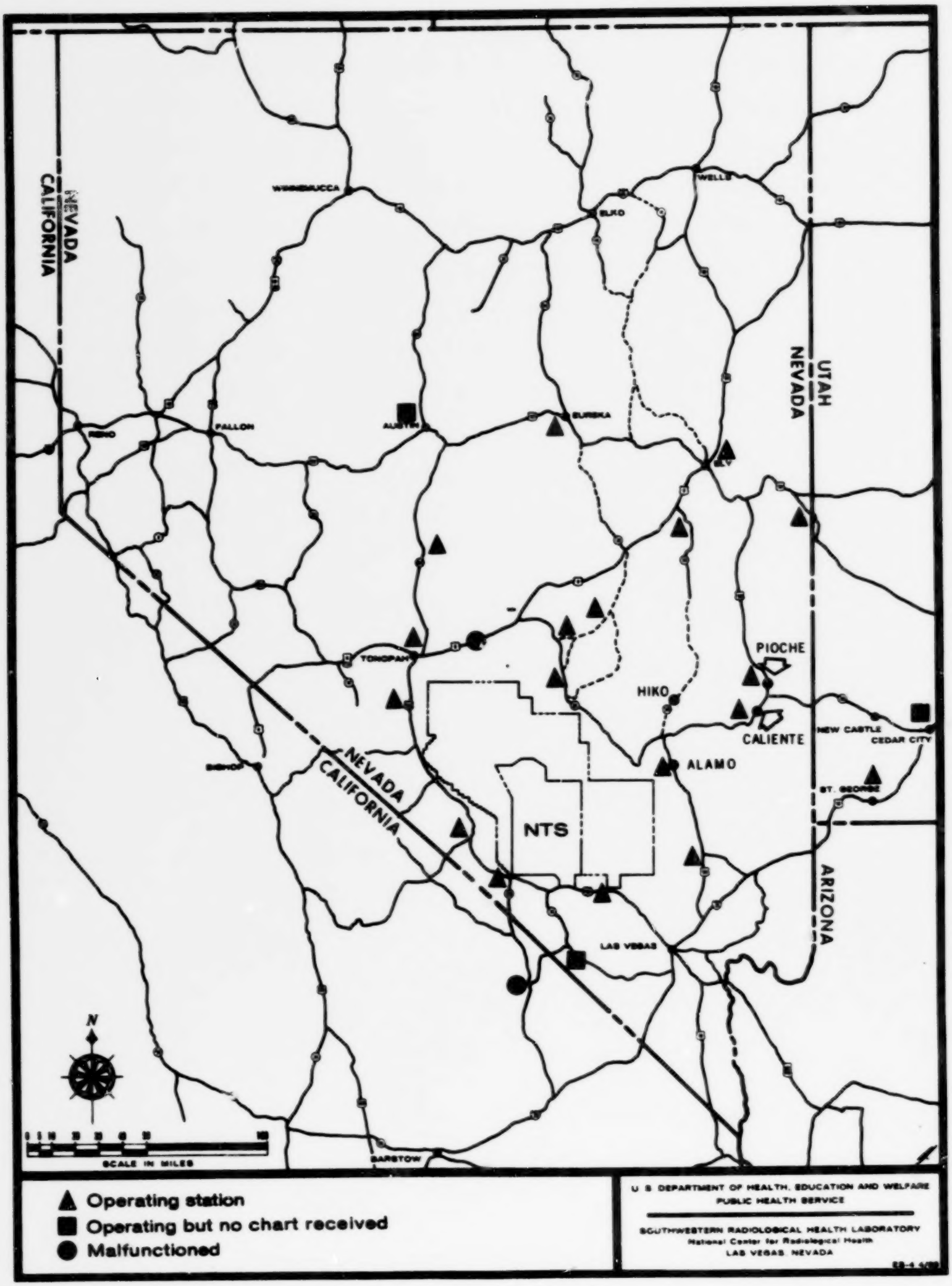


Figure 1. RM-11 Exposure rate recorder stations.

B. Environmental Sampling

1. Air Samples

On the day of the test, the AEC-PHS Air Surveillance Network (ASN) consisted of 104 Gelman "Tempest" air samplers. These samplers operate continuously at off-site locations with one or more samplers located in each state west of the Mississippi River except Montana and North Dakota. The network was supplemented by six standby stations located in the states of Colorado, Idaho, Utah and Wyoming. Standby stations are operated only when the station operator is notified by the Southwestern Radiological Health Laboratory(SWRHL) to begin sampling. There were also five portable air samplers placed downwind.

The "Tempest" air sampler used by the SWRHL uses a Gast Model 1550 vacuum pump driven by an electric motor. The pump has a flow rate of approximately 10 cfm.

The sampler is designed to use a 4-inch diameter filter paper (prefilter) and a Mine Safety Appliance Co. (MSA) charcoal cartridge. The ASN uses Whatman 541 filter paper for routine air sampling. The total volume of air sampled is calculated from an average vacuum reading (which in turn indicates the average flow rate) and the total time of sampling.

Air sampling stations operating during Pin Stripe surveillance activities are shown in Figures 2 and 3. In addition to the "Tempest" samplers, each mobile monitoring team was equipped with portable gasoline generator powered air samplers using the same filters as the "Tempest". The air mover in this system is a Gast Model 7040 positive displacement pressure-vacuum pump coupled to a Rockwell Model 415 gas meter for measurement of air flow. The flow rate of this system averages 6 cfm.

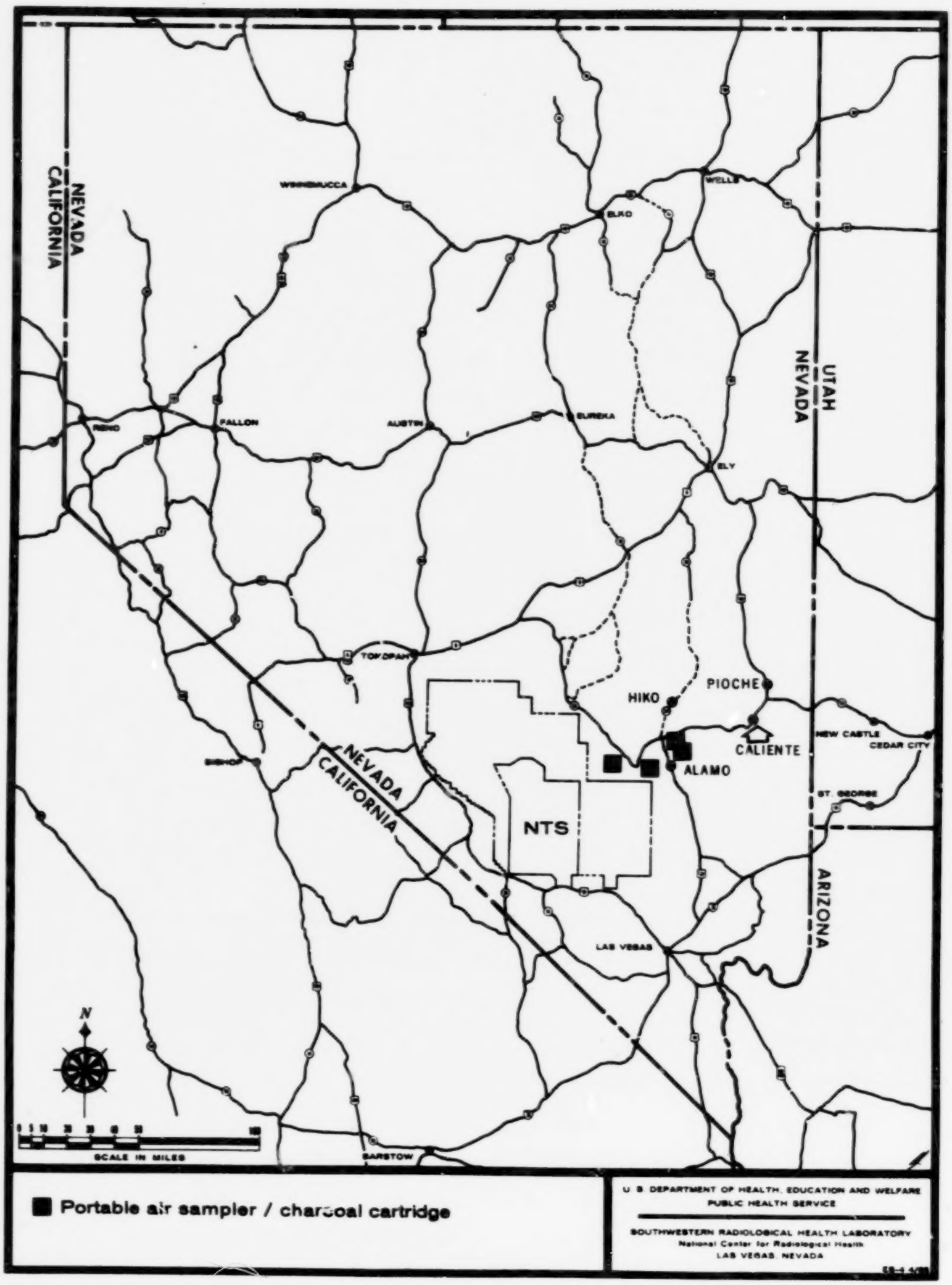


Figure 2. Portable air samplers operating in Nevada during the Pin Stripe Event.

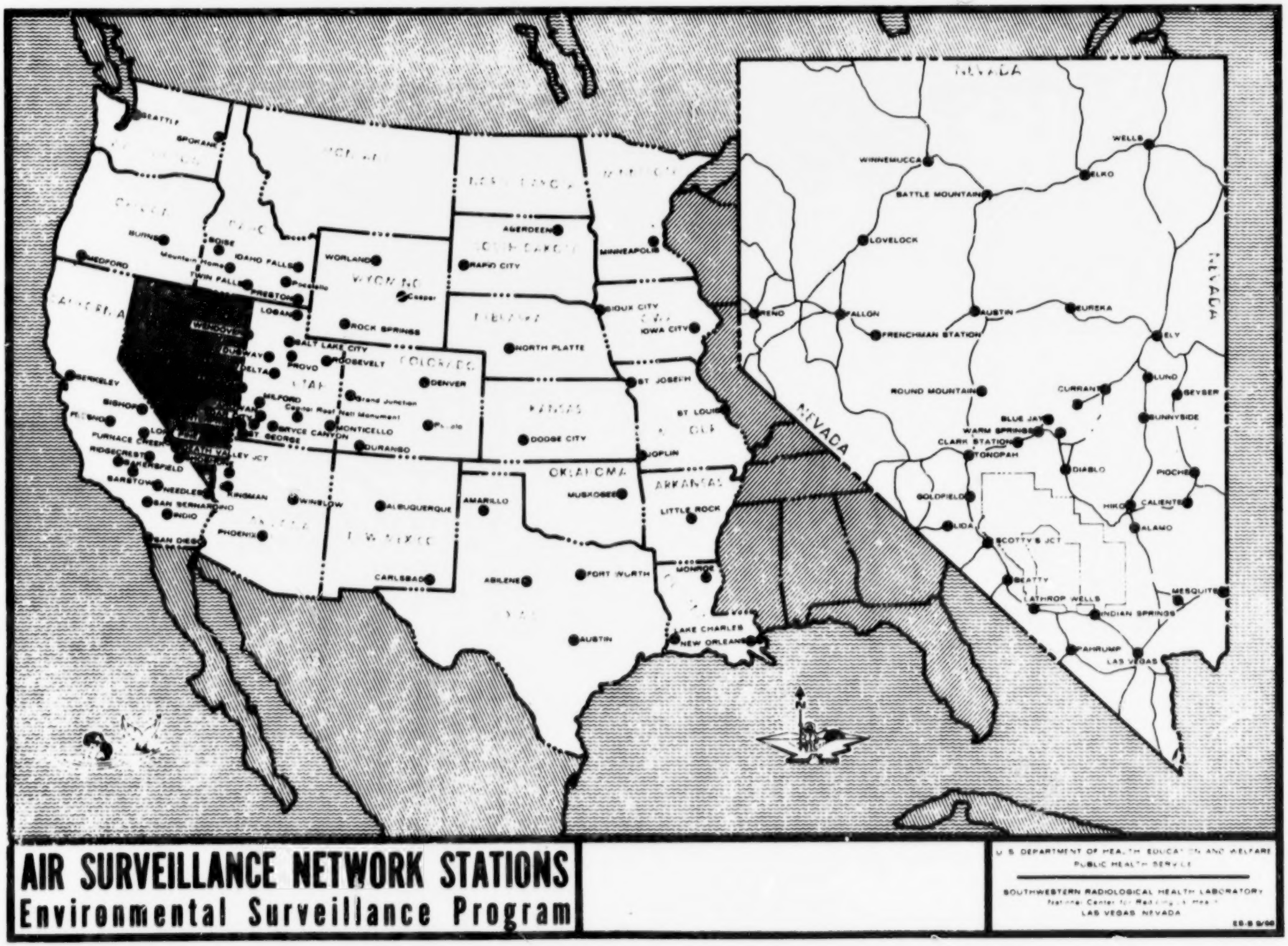


Figure 3. Air sampling stations operating during the Pin Stripe Event.

2. Milk Samples

The SWRHL milk sampling program consists of a routine milk sampling network, a standby milk sampling network, and special sampling in the event of a release of airborne radioactivity from nuclear testing activities.

From 20 to 30 producing dairy farms and individual family cows in Nevada, western Utah, and eastern California, are routinely sampled each month. The number sampled varies because of the availability of fresh cows on ranches producing milk for their own use. Normally these samples are collected by personnel from the laboratory.

Approximately 155 producing dairies in 11 western states are provided mail-in milk sample containers; pre-labeled, franked, and with appropriate instructions. Any or all of these sampling locations can be activated by telephone through the regional offices of the Public Health Service. The regional office contacts the appropriate state milk control agency which in turn contacts the local milk control agency or the producer. A follow-up telegram is sent to the regional Public Health Service office. This procedure requires from one to four days before the first sample is collected, depending upon the organizational structure of the state milk control agencies.

The SWRHL also conducts a continuous survey of off-site milk sampling locations. Possible sources for milk sampling are indexed and located on milk sampling maps. In the event of a release of radioactive effluent, monitors are able to begin sampling an area immediately.

3. Water Samples

Approximately 80 water samples are routinely collected each month from wells, streams, ponds, lakes and urban water systems. After a contaminating event, sampling is expanded to include all domestic and livestock water sources in the affected area. Water samples are collected at all locations where milk samples are collected, with the exception of the standby milk sampling network. Precipitation samples are collected when possible.

4. Vegetation Samples

Vegetation samples are collected only after a known release of radioactive effluent. These samples are collected to delineate deposition pattern, to determine where milk samples should be obtained, and to estimate radioisotope concentrations in milk. In addition to the wild plants (such as creosote bush), pasture and dry feed samples are collected when available.

Because of the highly variable collection ability of various plants, the impossibility of establishing completely consistent collection and counting techniques, and the highly complex role of micrometeorology in ground deposition, it is not practical to use vegetation results to assess human exposures. Vegetation sampling results are, therefore, reported as fresh fission products detectable or not detectable. At the time of the event, dairy cattle in the fallout sectors were being fed stored feed, hay, green chop and some cows were on pasture. Samples of the feed which were representative of the cows' feed at different locations were collected.

5. In Vivo Thyroid Investigation

Seventy-eight off-site residents were counted for specific gamma emitting isotopes in a mobile thyroid counting trailer following this event.

II. ANALYTICAL PROCEDURES

A. Air Samples

All air samples are returned to the SWRHL in Las Vegas for analysis. Filters are counted for gross beta activity in a Beckman "Wide Beta" low background (6 ± 1 cpm beta) proportional system which has an efficiency of 45% for 0.54 MeV betas. If significant activity (10 pCi/m^3) is detected on the initial count, a minimum of two additional counts are made in the first 48 hours following collection. All other filters are recounted at five and twelve days after collection. Computation of activity is based on establishing a decay constant for each sample and this constant is used to extrapolate the activity to the end of the collection period. The decay equation used is $A/A_o = e^{-\lambda t}$.

Gamma emitting isotopes on filter papers and charcoal cartridges are identified and quantitated by placing them directly on a 4- by 4-inch NaI(Tl) crystal coupled to a TMC Model 404-C gamma pulse height analyzer calibrated for energies of 0-2 MeV. Quantities determined are extrapolated to the end of the collection period using the individual decay constants.

Average concentration of activity during cloud passage cannot always be calculated since it is not possible to define the duration of cloud passage at all locations. However, the integrated air concentrations, expressed as pCi-hr/m^3, may be directly compared for the various stations, in addition to serving as a measure of the potential inhalation exposure.

B. Milk and Water Samples

Milk and water samples are collected in one-gallon quantities. These samples are emptied into 3.5-liter Marinelli beakers and are counted on 4- by 4-inch crystals for gamma analysis. If, for any reason, a full 3.5-liter sample cannot be obtained, the sample volume is increased to 3.5 liters by the addition of distilled water to maintain a uniform counting geometry, and appropriate adjustments are made to calculate the activity concentration in the original sample. When this is done, the threshold detectabilities given in Table 1 are proportionately increased. In addition to gamma spectrometry, most milk samples containing radioiodine are analyzed by radiochemistry for $^{89\text{-}90}Sr$ after gamma analysis.

C. Vegetation Samples

Upon arrival in the laboratory, vegetation samples are placed in clean plastic bags and are given an immediate count on a 4- by 4-inch NaI(Tl) crystal, connected to a scaler-timer, for gross gamma activity to determine which samples and, therefore, which locations may have been contaminated. The samples are then analyzed by gamma spectroscopy on the same systems as the other sample types.

D. Sensitivity

Statistical evaluation of gamma spectral analyses is difficult and open to discussion. However, on the basis of experience with various types of samples, empirical values have been determined as the approximate threshold detectabilities for various isotopes on the sample types usually collected. These are listed in Table 1 and necessarily include the following assumptions:

a. Count time in days after formation as indicated by footnotes.

b. Prefilters collect unfractionated fission products resulting in a complex spectrum.

c. MSA charcoal collects gaseous fission products only (primarily iodines).

d. An eight isotope matrix is employed for computation and isotopes other than those examined are present in amounts which are small relative to those eight.

e. Natural activity on air samples is approximately five times system background.

Table 1. Threshold detectability at time of count of several radionuclides in various samples, pCi.

Sample type	Notes	^{131}I	$^{132}Te\text{-}I$	^{133}I	^{135}I	^{137}Cs	$^{140}Ba\text{-}La$	Length of count
Filter	1	500	1000	500	1000		500	10 min.
	2	200		200			200	10 min.
Charcoal Cartridge	1	200		400	200		400	10 min.
	2	100			100			10 min.
Water (pCi/l)	3	20	40-50	20-30	40-50		20	40 min.
Milk (pCi/l)	4	20		20-30		10	20	40 min.

1 - Counted at less than 3 days after formation
2 - Counted at 3 days or more after formation
3 - With $^{137}Cs \leq 100$ pCi
4 - Assuming insignificant amounts of other nuclides, and all given isotopes less than 10 times the detection limit.

III. RESULTS

The Pin Stripe venting resulted in gaseous and particulate contamination in the off-site populated areas.

Ground monitors were positioned according to data obtained from aerial and on-site monitoring and U. S. Weather Bureau predictions (ESSA-ARL). Wind speeds and directions for five periods before and after detonation are shown in Table 2.

Table 2. Upper air data from Yucca Lake on April 25, 1966.

Height (Ft. MSL)	Wind direction & speed (Deg/Kts) at times indicated(hrs/PDT)				
	0600	1142	1400	1525	1600
Surface	Calm	170/12	230/13	220/12	180/10
5,000	230/04	220/10	220/06	220/12	200/10
6,000	250/12	230/13	220/10	220/10	210/12
7,000	240/09	230/10	220/13	230/08	220/11
9,000	250/11	220/07	210/10	230/10	230/11
10,000	250/07	220/05	190/12	240/12	230/06
11,000	230/02	220/06	190/14	230/13	240/07
12,000	210/02	210/08	220/10	240/13	260/12
13,000	190/02	210/08	220/08	250/13	250/11
14,000	240/06	270/10	270/08	270/14	280/13

A. Exposure Rate Measurements

1. Aerial Monitoring

The cloud tracking mission of the U. S. Air Force U-3A aircraft lasted from 1135 to 1642 hours, PDT. Since the measurements

taken by this aircraft serve only to augment the effectiveness of the surveillance program (particularly the positioning of ground monitors), and do not represent exposures to people on the ground, they are not presented in this report.

2. Ground Monitoring

Pin Stripe effluent was first detected off-site, northeast of Groom Lake at 1355 hours and arrived at Highway 25, 6.5 miles W of Hancock Summit at 1435. By 1630 hours, gamma exposure rates above background were detected from Coyote Summit to Alamo, Nevada, along Highways 25 and 93. Cloud arrival at various locations indicated the cloud was moving at about 15-17 miles per hour. The furthest north that effluent was detected by a ground monitor was at Pioche, 112 miles northeast of ground zero. The cloud reached this location at about 1800 hours. Exposure rates along Highway 25 ranged from 0.07 to 6.0 mR/hr with the majority of the readings around 1.0 mR/hr. The maximum exposure rate measured (at 3 feet above ground level) in the off-site area was 8 mR/hr, net gamma, between 1402 and 1405 hours, PDT, 18 miles NE of Groom Lake. This location is along a gravel road used only occasionally by vehicles.

The maximum reading at a continuously populated area was 1.5 mR/hr at Hiko at 1600, PDT. Selected monitoring data are presented in Table 3. Estimated infinite whole body gamma exposures derived from ground monitoring data at two locations are shown in Table 4. These estimated infinite exposures are based on monitoring readings obtained after cloud passage and not on the peak readings obtained during cloud passage.

Table 3. Selected ground monitoring results in off-site populated areas April 25, 1966, at 3 feet above ground level.*

Location	Time of peak γ exposure rate PDT	Net peak γ exposure rate mR/hr*
Alamo	1555-1600	0.23
Ash Springs	1610	0.9
Caliente	1814	0.02
Hiko	1600	1.5
Pioche	1840-1856	0.05

*E-500B portable survey instrument.

Table 4. Estimated infinite gamma exposure at two populated locations.

Location	Net γ at 24 hrs	Infinite exposure
Hiko, Nevada	0.1	12 mR
Alamo, Nevada	0.04	5 mR

3. Exposure Rate Recorders

RM-11 recorder charts collected after the Pin Stripe Event showed exposure rates above background at Alamo, Caliente and Pioche. Results are shown in Table 5.

Table 5. Exposure rates occurring off the test range complex on April 25, 1966, as measured by RM-11 recorders.

Location	Time of peak exposure rate (PST)	Time exposure rates rose above background	Net peak exposure rate mR/hr
Alamo	4/25 1600	4/25, 1510	0.15
Caliente	4/25 1755-1805	4/25, 1740 4/25, 1925	0.01
Pioche	4/25 1845	4/25, 1750	0.04

4. Film Badges

One film badge collected after the Pin Stripe Event showed

an exposure at the detection limit. This badge was taken from a film badge station at Hancock Summit, an unpopulated location on Highway 25. This badge showed a total exposure of 30 mR and was exposed from 3/31/66 - 5/10/66. TLD's from Hancock Summit showed no detectable exposures above normal background levels, nor did TLD's from any other location show net exposures above background.

No personnel badges showed exposures at or above the detection limit.

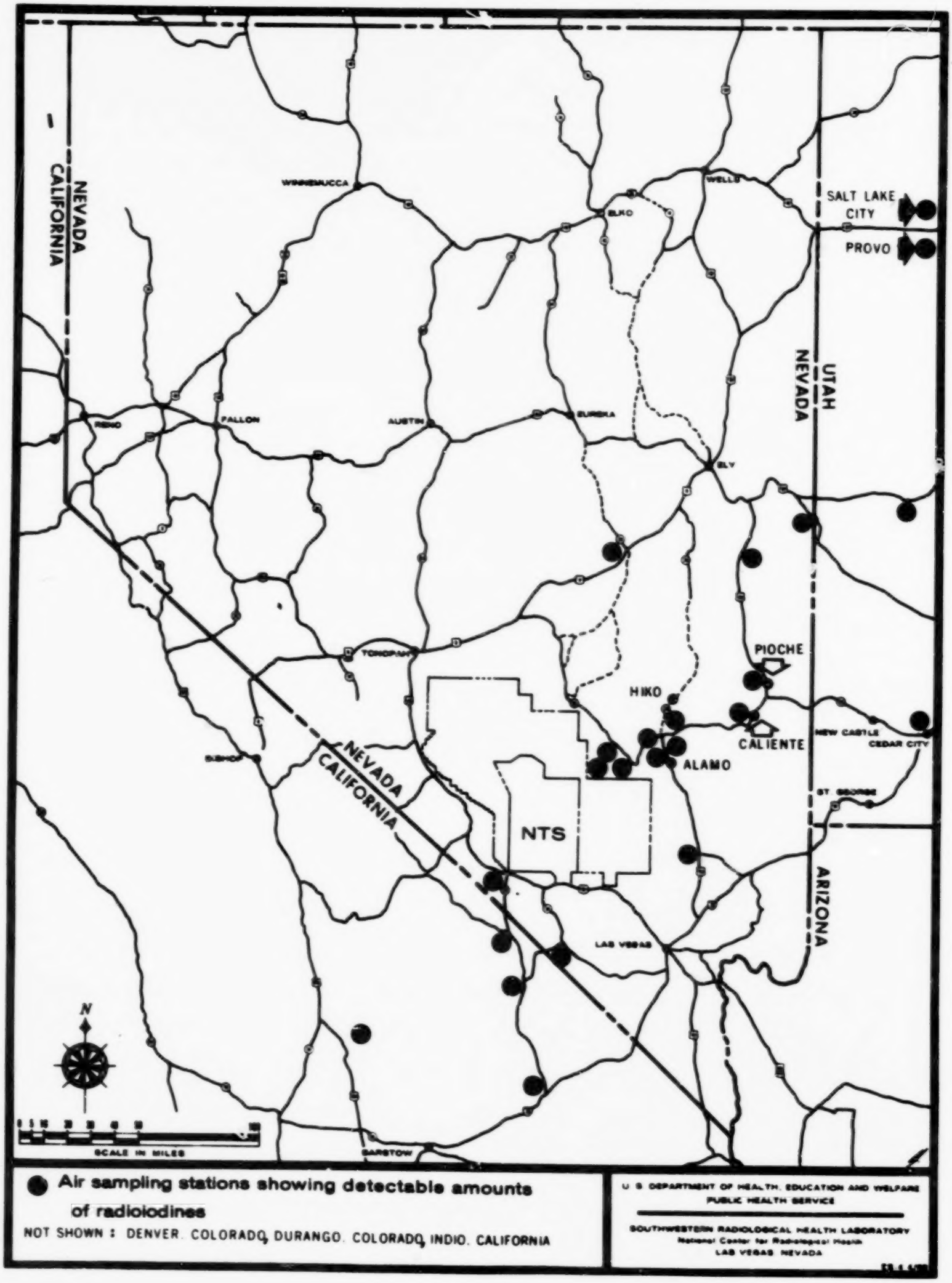
B. Environmental Sampling

1. Air Sampling

Nineteen permanent air sampling stations and five temporary-portable stations in the off-site area showed detectable amounts of fresh fission products (primarily radioiodines) on prefilters, cartridges, or both. These stations are shown in Figure 4. The area in which fresh fission products were found by air sampling, extended to Indio, California, on the south; Ridgecrest, California, on the west; Salt Lake City, Utah, to the northeast; and Denver, Colorado, to the east.

Wind direction on the day of the event was from the southwest, therefore the highest concentrations were found to the northeast of surface ground zero. Comparison of radioiodine concentration on prefilters and charcoal cartridges suggests that the radioiodines were mostly particulate. This assumption is strengthened by the fact that considerable visible material was ejected at the time of the detonation.

Wind direction changed approximately 180° late on April 26 or early on April 27. Seepage of gaseous material from surface zero continued for several days. This material was carried to the south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SCALE IN MILES
Air sampling stations showing detectable amounts of radioiodines
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National Center for Radiological Health
LAS VEGAS, NEVADA

Figure 4.

and was detected by air samplers as far south as Indio, California. A small amount (0.5 pCi/m^3) of ^{131}I was detected on a charcoal cartridge exposed at Alamo, Nevada, as late as May 3. Examination of air filters was limited to gamma pulse height analysis and gross beta counting. It is not possible, therefore, to definitely determine whether such a small amount of radioiodine was gaseous material from continuing seepage or resuspension of particulate material deposited earlier. By May 4 no stations showed detectable amounts of fresh fission products.

Table 7 lists eight stations where concentrations of ^{131}I were in excess of 50 pCi/m^3. All other stations, where gamma pulse height analysis was performed on filters, were below 10 pCi/m^3 ^{131}I. All stations showing detectable amounts of ^{131}I are listed in Appendix I.

2. Water Sampling

A total of 187 water samples was collected by the off-site surveillance program for Pin Stripe. Sampling locations are shown in Figure 5, and all water sampling results are listed in Appendix II. Four samples from one domestic tap showed measureable concentrations of ^{131}I. These are shown in Table 6. These concentrations of ^{131}I at the Davis Ranch were due to the completely open supply from which the domestic water was taken.

Table 6. Domestic water supply samples containing ^{131}I pCi/l.

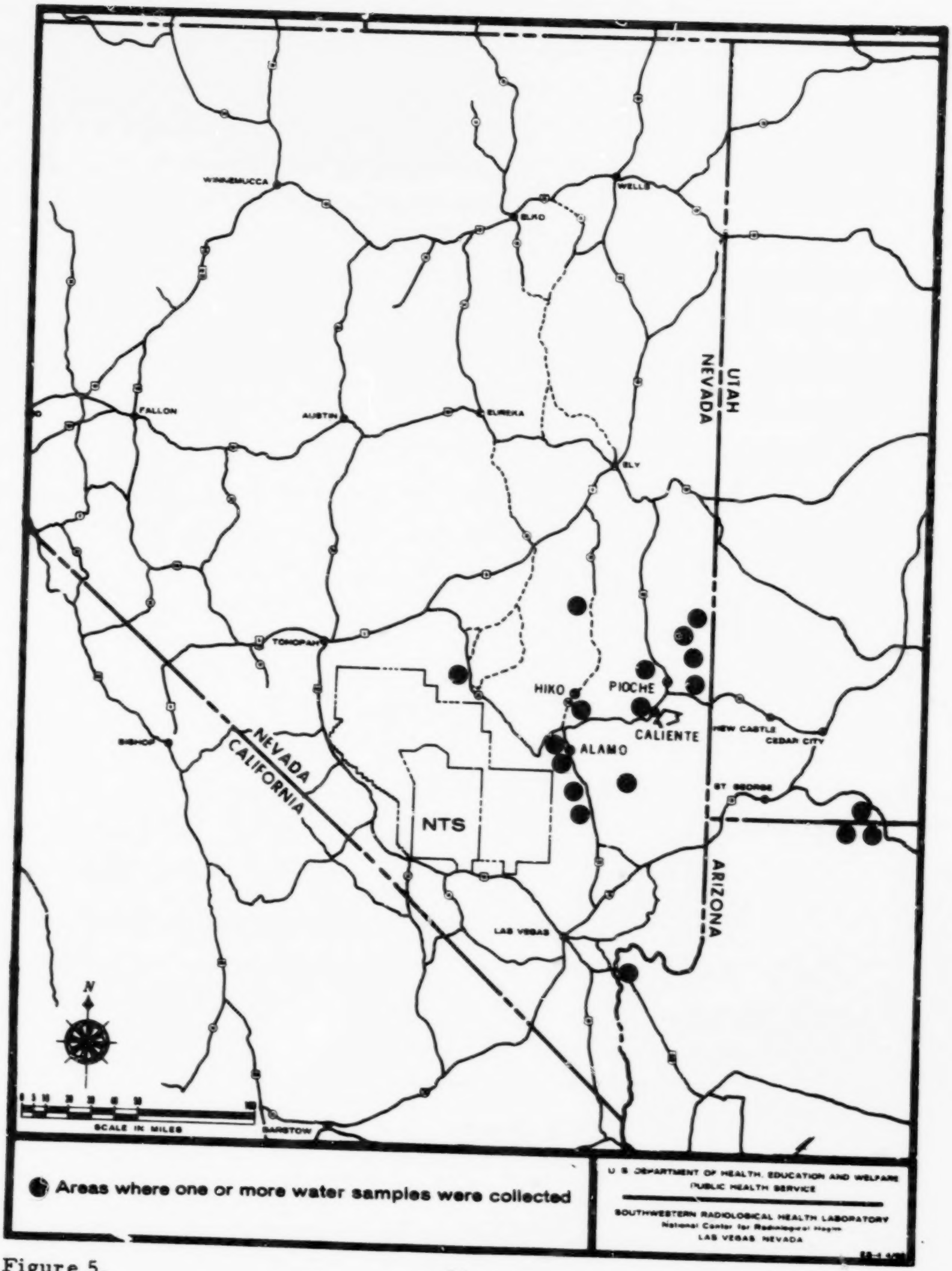
Location	Date Collected	Source	Gross Beta*	Gross Alpha	^{131}I	^{132}I	^{133}I	^{135}I
Hiko, Nevada	4/26	Open tank	151	1.4	3860	80	270	-
Davis Ranch	4/27	" "	35	0.1	50	30	60	-
Davis Ranch	4/28	" "	19	2.5	30	-	-	-
Davis Ranch	4/30	" "	8	3.3	40	-	-	-

*Activity other than iodine.

Table 7. Air sampling stations with concentrations of ^{131}I in excess of 50 pCi/m^3 on prefilters.

Location	COLLECTION							ISOTOPIC ANALYSIS									
	Sampling Period April 1966				Total Hrs.	Volume (m^3)	Collector	Gross Beta		^{131}I		^{132}I		^{133}I		^{135}I	
	Start Day	Hr	Stop Day	Hr				pCi/m^3	pCi-Hr/m^3	pCi/m^3	pCi-Hr/m^3	pCi/m^3	pCi-Hr/m^3	pCi/m^3	pCi-Hr/m^3	pCi/m^3	pCi-Hr/m^3
6.5 mi W of Hancock Summit	25	1413	25	1700	3.1	26	P	50,000	160,000	3,500	11,000	12,000	37,000	4,100	13,000	19,000	59,000
							C			150	470	1,200	3,700	500	1,600	7,800	24,000
18 mi NE of Groom Lake	25	1400	25	1535	1.6	32	P	45,000	72,000	5,100	8,200	38,000	61,000	12,000	19,000	78,000	120,000
							C			290	460	2,600	4,200	880	1,400	16,000	26,000
Hancock Summit	25	1435	25	1745	3.1	32	P	34,000	110,000	2,600	8,100	8,900	28,000	3,000	9,300	17,000	53,000
							C			170	530	1,500	4,600	660	2,000	10,000	31,000
Ash Springs, Nevada	25	1430	25	1755	3.3	35	P	25,000	83,000	5,300	17,000	18,000	59,000	5,600	18,000	32,000	110,000
							C			130	430	950	3,100	290	960	6,300	21,000
Hiko-Crystal Springs	25	1430	25	1810	3.8	35	P	21,000	80,000	1,600	6,100	6,800	26,000	1,900	7,200	10,000	38,000
							C			400	1,500	1,200	4,600	800	3,000	7,000	27,000
Hiko, Nevada	25	0810	25	1800	10.9	226	P	3,500	38,000	510	5,600	1,900	21,000	650	7,100	3,600	39,000
							C			39	430	330	3,600	150	1,600	1,700	19,000
Pioche, Nevada	25	1525	25	1925	3.9	81	P	2,200	9,000	1,100	4,300	200	800	350	1,400	ND	ND
							C			53	210	40	160	250	970	600	2,300
Alamo, Nevada	25	0730	26	0725	23.8	407	P	710	17,000	57	1,400	140	3,300	110	2,600	220	5,200
							C			19	450	86	2,000	75	1,800	100	2,400

P - Whatman 541 filter(prefilter)
C - Mine Safety Appliance Co. Charcoal cartridge
Gross beta and radionuclide data extrapolated to end of collection period
pCi-Hr/m^3 was computed using the actual sampling time, which in some cases will differ from the total time between time on and time off, which may be only approximate.


WINNEMUCCA
WELLS
ELKO
FALLON
AUSTIN
EUREKA
ELY
UTAH
NEVADA
TONOPAH
HIKO
PIOCHE
CALIENTE
NEW CASTLE
CEDAR CITY
ALAMO
ST GEORGE
BISHOP
NEVADA
CALIFORNIA
NTS
ARIZONA
LAS VEGAS
N
SCALE IN MILES
BARSTOW
Areas where one or more water samples were collected
U S DEPARTMENT OF HEALTH, EDUCATION AND WELFARE
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LAS VEGAS NEVADA

Figure 5.

3. Vegetation Samples

Five hundred and seventy-one vegetation samples from 123 locations were collected and analyzed for gamma emitting isotopes. Of these, fresh fission products were found at 95 separate locations.

All sampling locations are listed in Appendix III and the general areas sampled are shown on Figure 6. For the reasons stated in Operational Procedures, vegetation samples are shown as fresh fission products detected or not detected.

4. Milk Samples

Six hundred and fifty-five milk samples from 80 separate dairies, processing plants, or individual ranches, were collected for the Pin Stripe Event. Six hundred and fifty milk samples were analyzed for gamma emitting isotopes and selected samples were subjected to ^{89}Sr and ^{90}Sr analysis. Of the 650 samples with complete gamma information, 187 contained detectable amounts of ^{131}I. The maximum concentration of ^{131}I was found in a sample from the Schofield Dairy at Hiko, Nevada. This sample had a concentration of 4800 pCi/l and was collected April 27, 1966. Four other locations had peak ^{131}I concentrations above 1000 pCi/l. These were the L. Lee Dairy at Alamo, Nevada, (1400 pCi/l); the Sharp Ranch at Alamo (2100 pCi/l); the Davis Ranch at Hiko (3500 pCi/l); and the Donahue Ranch at Ursine, Nevada, (1100 pCi/l). By the second day after the event, several factors had modified the normal disposition of milk from the five locations mentioned above. All the milk being produced by family cows at the Davis, Donahue, and Sharp Ranches was taken for sampling purposes. Uncontaminated milk and dairy products were substituted in lieu of cash payments. At the Schofield Dairy at Hiko, stored hay from Utah was purchased by the Government and substituted for the green chop being fed at that time. The feed

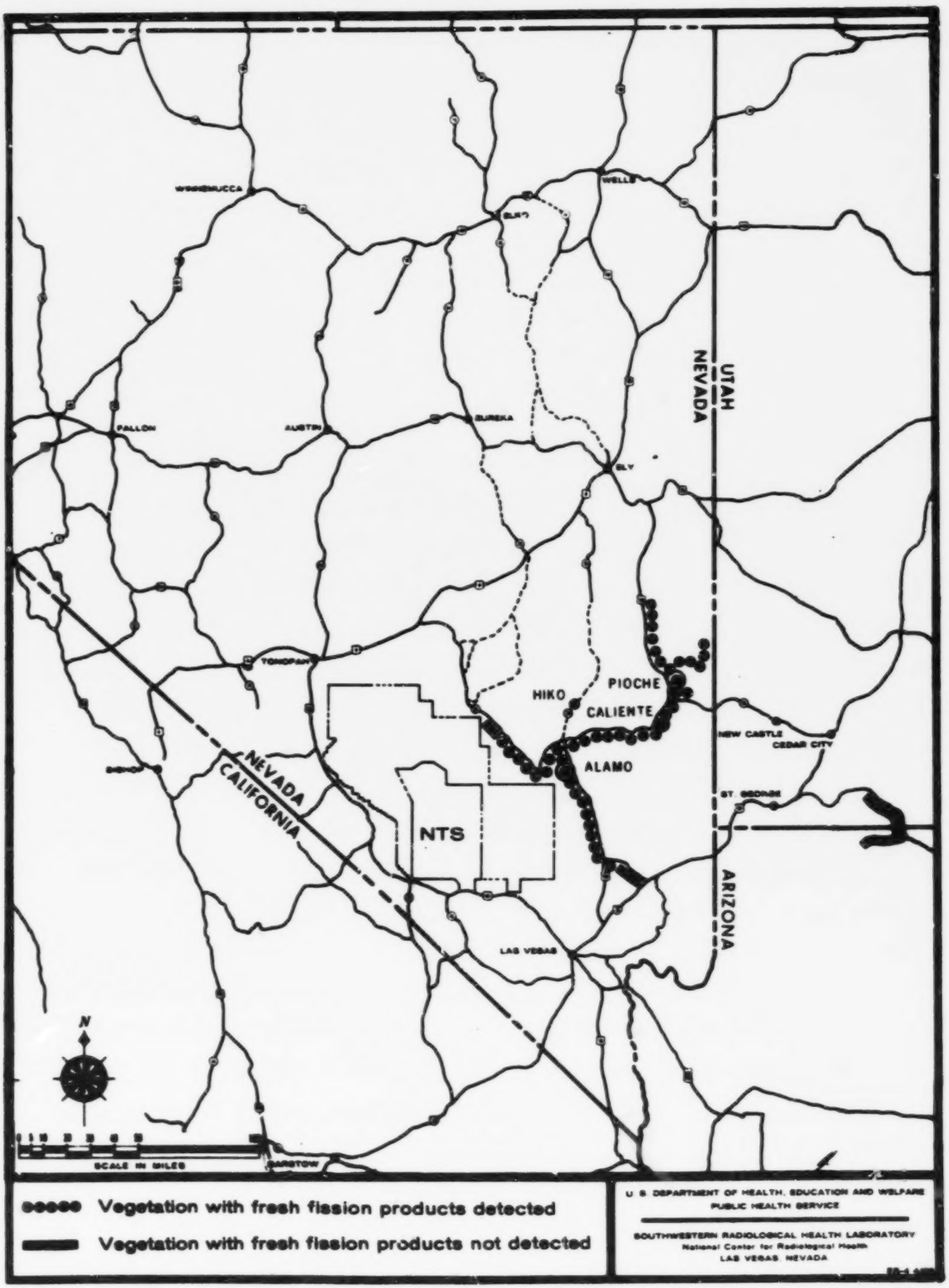


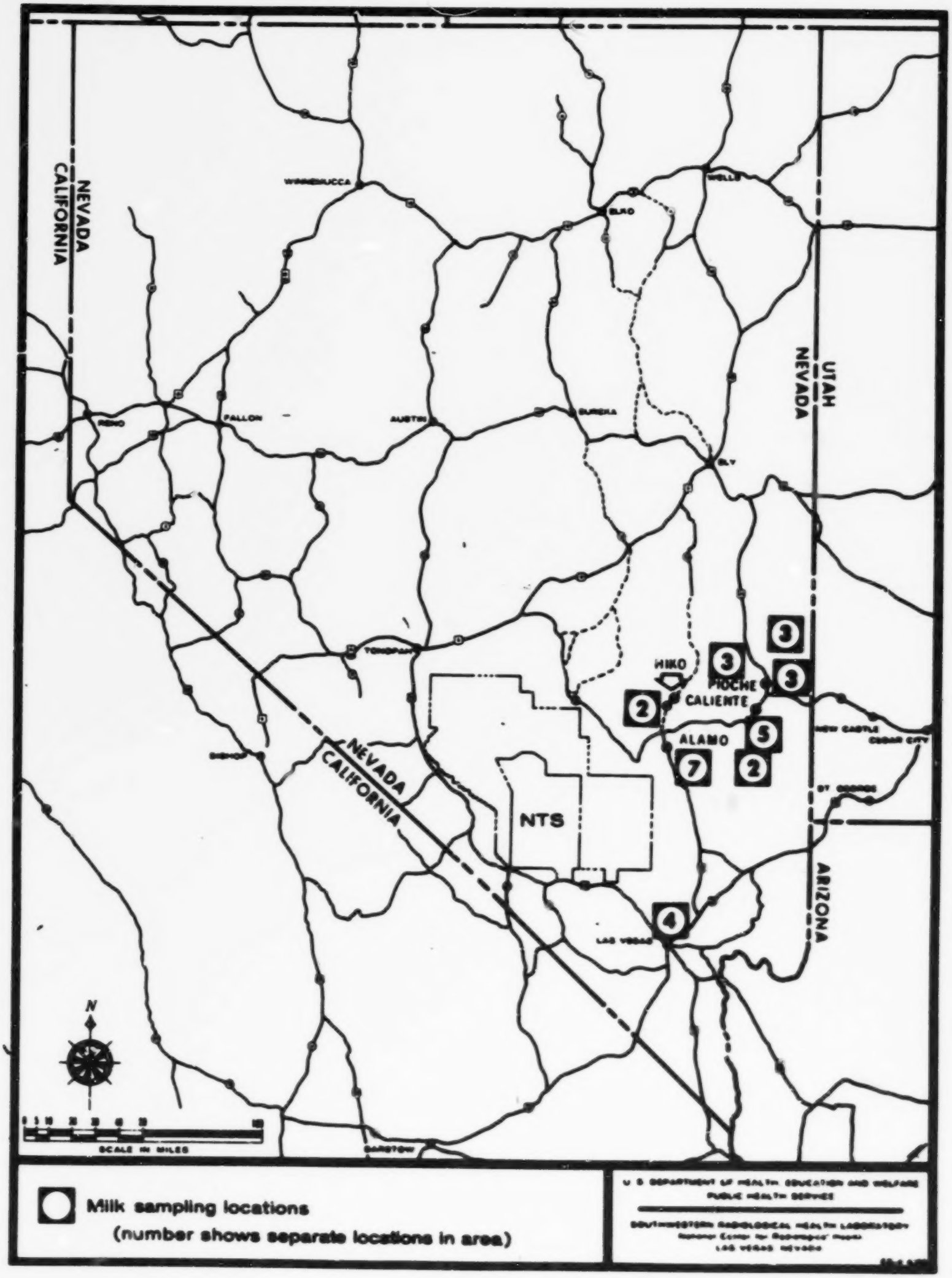
Figure 6. Vegetation sampling along roads.

substitution program is the subject of another report, "Preventive Action Taken at Schofield's Dairy, Hiko, Nevada, Following an Accidental Release of Radioactivity from the Nevada Test Site," - SWRHL-56r.

Milk from the L. Lee Dairy and the Schofield Dairy was diluted with uncontaminated milk from dairies outside the affected areas. Sampling of milk from the tank truck at the processing plant showed a maximum of 100 pCi/l ^{131}I. Milk collected at the retail outlets from this processing plant showed no detectable radioiodines. Milk sampling locations are shown in Figures 7 and 8. Table 8 lists milk samples with the highest ^{131}I concentrations from each location sampled. Appendix IV lists the results of all milk samples collected for this event. Figure 9 shows ^{131}I concentration versus time at the Sharp Ranch in Alamo, Nevada.

5. Feed Substitution Study

The decision to substitute dry hay was prompted by vegetation sampling of green alfalfa feed from the Schofield Dairy. By 0300 on the morning of April 26, results from gamma analysis of these samples indicated the possibility of ^{131}I levels in milk reaching 5×10^4 pCi/l. PHS and AEC officials decided to substitute dry hay to keep radioiodine levels as low as possible, and to provide experimental information under actual field conditions for future planning purposes. Four cows from the Schofield Dairy herd were rented by the SWRHL and continued on the fresh alfalfa. All the milk from these four cows was withheld from consumption. Figure 10 compares the milk from these four cows, and the milk from the remainder of the herd. Measured levels of ^{131}I peaked out at less then 1/10 predicted levels. The reasons for this disparity are not completely understood. Analysis of milk samples from other dairies or ranches in the area showed ^{131}I


NEVADA
CALIFORNIA
WINNEMUCCA
ELKO
WELLS
RENO
FALLON
AUSTIN
EUREKA
UTAH
NEVADA
ELY
HIKO
PIOCHE
CALIENTE
ALAMO
NEVADA
CALIFORNIA
NTS
ARIZONA
LAS VEGAS
BARSTOW
N
SCALE IN MILES
3
3
3
2
5
7
2
4
Milk sampling locations
(number shows separate locations in area)
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PUBLIC HEALTH SERVICE
SOUTHWESTERN RADIOLOGICAL HEALTH LABORATORY
LAS VEGAS NEVADA

Figure 7.

Figure 8. Milk sampling locations other than in Nevada.

Table 8. Milk samples containing highest levels of ^{131}I from each location that showed fresh fission products.

Collection Data		Analytical Data				
Location	Date of milking	Activity (pCi/l)				
		^{131}I	^{133}I	^{137}Cs	^{89}Sr	^{90}Sr
Alamo, Nevada						
Wright Dairy	4/26/66	50	330	45	ND*	3
Leo Stewart Dairy	4/27/66	270	850	45	ND	6
M. K. Stewart Dairy	4/28/66	590	770	ND	ND	4
Sharp Ranch	4/28/66	2100	5100	ND	5	3
L. Lee Dairy	4/28/66	1400	1800	ND	ND	6
Frehner Dairy	5/09/66	60	ND	20	No Chemistry	
	5/10/66	60	ND	25	ND	2
Caliente, Nevada						
Young Ranch	4/27/66	30	90	30	No Chemistry	
	4/28/66	30	70	30	No Chemistry	
	4/30/66	30	ND	15	ND	4
Charlton Ranch	4/28/66	130	ND	85	No Chemistry	
Raymond Ranch	4/30/66	100	500	ND	ND	10
Tennille Ranch	5/01/66	50	ND	45	ND	3
Hiko, Nevada						
Davis Ranch	4/27/66	3500	7800	ND	15	4
Schofield Dairy	4/27/66	4800	12,000	ND	10	3
Las Vegas, Nevada						
Anderson Dairy #4	5/16/66	100	ND	15	ND	5
(milk from Alamo)	5/19/66	100	ND	20	ND	5
Panaca, Nevada						
E. Deck Ranch	4/27/66	70	220	60	No Chemistry	
K. Lee Ranch	4/30/66	170	60	40	ND	8
Pioche, Nevada						
Del Mue Ranch	4/27/66	30	ND	60	No Chemistry	
Ursine, Nevada						
Donahue Ranch	4/28/66	1100	1200	45	ND	15

Table 8. Milk samples containing highest levels of ^{131}I from each location that showed fresh fission products. (continued)

Collection Data		Analytical Data				
Location	Date of milking	Activity (pCi/l)				
		^{131}I	^{133}I	^{137}Cs	^{89}Sr	^{90}Sr
Fredonia, Arizona Button Ranch	5/02/66	70	ND	45	ND	10
Mt. Trumbull, Arizona O. Bundy Ranch	5/02/66	20	ND	35	ND	6
Spanish Fork, Utah Town Pride Dairy	4/28/66	60	ND	85	ND	10
Idaho Falls, Idaho Wallace Dairy	4/29/66	70	ND	30	ND	10

*ND = Not detected. Minimum detectable levels are: ^{89}Sr, 5 pCi/l; ^{133}I, 20 pCi/l; ^{137}Cs, 10 pCi/l.

Note: The strontium results listed are, for the most part, composites of 3 or 4 days samples. Compositing was necessary because of the large number of samples processed following this event.

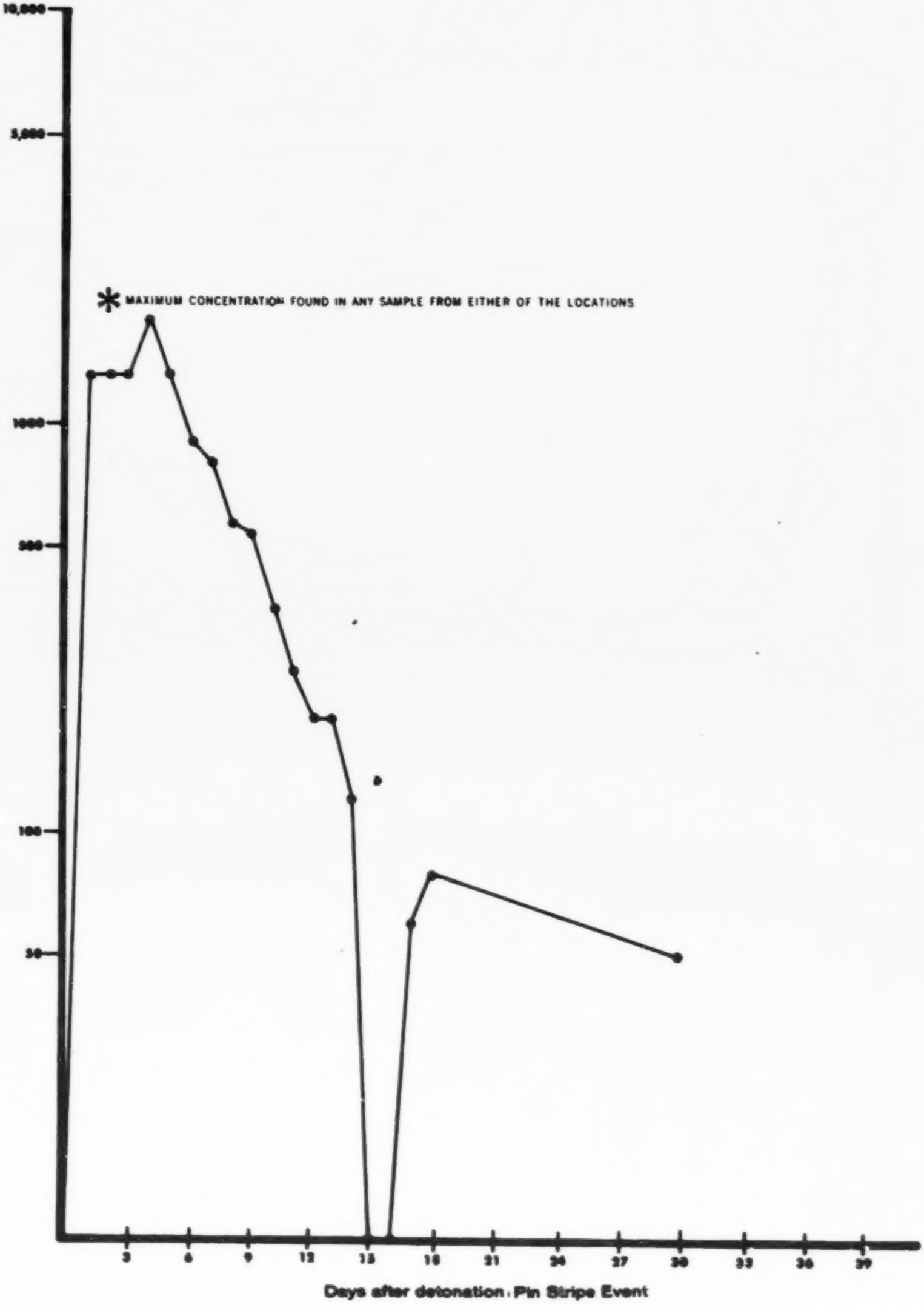

Figure 9. ^{131}I concentration in milk from two cows on pasture in Alamo, Nevada.

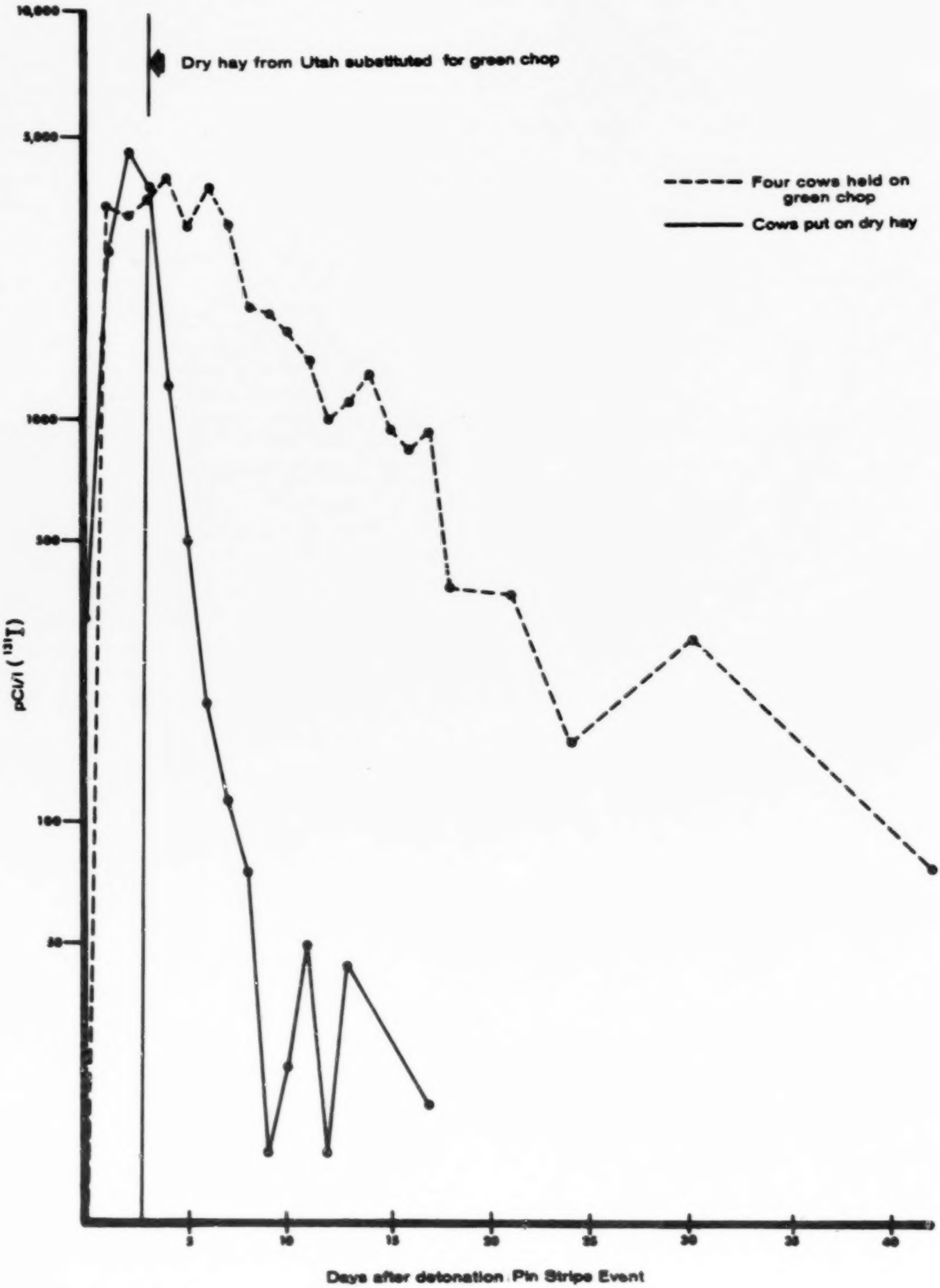
Dry hay from Utah substituted for green chop
Four cows held on green chop
Cows put on dry hay
pCi/l (^{131}I)
Days after detonation Pin Stripe Event

Figure 10. Comparison of ^{131}I concentration in milk from the same dairy after substitution of dry hay for green chop.

concentrations well within acceptable limits. A detailed report of the results of this experiment was released by the Bioenvironmental Research Program of the SWRHL, "Dairy Farm Radioiodine Studies Following the Pin Stripe Event of April 25, 1966," - SWRHL-41r.

6. Thyroid Analysis

The Pin Stripe Event provided the first oppcrtunity to use the SWRHL thyroid analysis trailer under actual field conditions. The trailer is a commercially available travel trailer equipped with a 5- by 2-inch NaI crystal detector, multi-channel analyzer, and proper shadow shielding. The trailer, with generator equipped pick-up, is completely self contained and it is possible to determine actual thyroid exposures in the field. Based on information derived from aircraft measurements and reported iodine measurements in some milk samples, the thyroid analysis trailer was moved to the Alamo area. The first measurements were made 50 hours following the venting at a ranch 15 miles north of Alamo; however, high backgrounds and extremely low thyroid burdens necessitated moving the thyroid trailer into the town of Alamo for most of the measurements.

Spectra taken at this time were characterized by rather large quantities of ^{132}I. As an initial, and certainly conservative, estimate of the exposure, the ^{132}Te precursor was assumed to be fixed in the body with the ^{132}I in equilibrium. Measurements taken several days later demonstrated that this probably was not the case. The ^{132}I peaks were probably due to external ^{132}Te on the children and small lung burdens of ^{132}Te.

The trailer was taken to Ursine, Nevada, on April 30, 1966, and children representing families from Pioche, Panaca, and Ursine were counted. The highest dose measured at this location was below 50 mrad.

All exposures were computed assuming inhalation at the time of cloud passage. The dose conversion factors used were 0.028 mrad/pCi/gram thyroid for ^{133}I, and 0.128 mrad/pCi/gram thyroid for ^{131}I. Theoretical thyroid weights for children were used to calculate the exposures from the burdens measured by the thyroid counter.

A summary of all the information obtained is shown in Table 9. The information in the table represents the maximum upper limits of possible thyroid absorbed doses.

Table 9. Number of people within a given range of computed thyroid dose.

Location	Background	BKG-50 mrad	50-150 mrad	150-300 mrad	Total
Alamo	10	17	6	0	33
Hiko	5	19	8	2	34
Ursine	4	1	0	0	5
Pioche	1	0	0	0	1
Panaca	5	0	0	0	5

Male children - 37
Female children - 33
Female adults - 8

IV. CONCLUSIONS

The sampling and analysis of environmental factors following the Pin Stripe Event was extensive and a large effort was made to document the external and internal exposures to ionizing radiation resulting from Pin Stripe.

A. External Exposures

Whole body gamma exposure resulting from Pin Stripe effluent was determined by portable and fixed radiac instruments. Projection of infinite exposures from survey instrument readings taken on the day following the contaminating event, indicated a maximum infinite external exposure to any populated area to be 12 mR. Perhaps the most meaningful comparison that might be made of such an exposure is to compare it with background radiation exposures. Measurement of background exposures by thermoluminescent dosimeters from several locations throughout the state, show a range of approximately 100-200 mR/year. Thus, an infinite exposure dose of 12 mR would add about 10% to normal yearly background radiation.

B. Internal Exposures

The thyroid analysis trailer provided the PHS with an invaluable tool for evaluating radioiodine thyroid burdens of off-site residents. Due to the relatively low levels of iodine isotopes contained in the thyroids of those people

analyzed, the results are given in ranges rather than specific doses for each individual. Two individuals from the Hiko area showed thyroid absorbed doses in the 150-300 mrad range.

C. Health Implications

Considering the extremely small internal and external doses resulting from the Pin Stripe Event, it is concluded that the exposure to additional ionizing radiation was negligible.

APPENDICES

Appendix I. Additional Air Sampling Results, April 1966 35

Appendix II. Complete Water Sampling Data 42

Appendix III. Vegetation Sampling Data 50

Appendix IV. Complete Milk Sampling Data 59

Appendix I. Additional Air Sampling Results, April, 1966.

Location	Collection Sampling Period Start Day Hr	Stop Day Hr	Total Time (Hr)	Sample Volume (m^3)	Collector	Beta Activity (pCi/m^3)	Beta Exposure ($pCi\text{-}hr/m^3$)	Results ^{131}I pCi/m^3	$pCi\text{-}hr/m^3$	$^{132}Te\text{-}I$ pCi/m^3	$pCi\text{-}hr/m^3$	^{133}I pCi/m^3	$pCi\text{-}hr/m^3$	^{135}I pCi/m^3	$pCi\text{-}hr/m^3$
Baker, Calif.	26 1400	27 1400	24.0	460	P	[illegible]3.0	1300	9.3	220	3.7	88	280	[illegible],600	ND	ND
	27 1400	28 1400	24.0	485	P	1.2	29				NGS				
	28 1400	29 1400	24.0	472	P	2.1	50								
	29 1400	30 1400	24.0	472	P	0.18	4.3								
Death Valley Jct., Calif.	26 0645	27 0645	24.0	448	P	34.0	820	5.2	120	19	460	ND	ND	ND	ND
	26 0645	27 0645	24.0	448	P	34.0	820	[illegible].2	120	19	460	ND	ND	ND	ND
	26 0645	27 0645	24.0	448	C						NGS				
	27 0645	28 0645	24.0	485	P	0.78	19								
	27 0645	28 0645	24.0	485	C										
	28 0645	29 0645	24.0	472	P	1.3	31								
	28 0645	29 0645	24.0	472	C										
	29 0645	30 0645	23.9	483	P	0.22	5.2								
	29 0645	30 0645	23.9	483	C										
	30 0645	01 0700	24.3	491	P	0.18	4.4	ND	ND	ND	ND	ND	ND	ND	ND
	30 0645	01 0700	24.3	491	C						NGS				
Indio, Calif.	26 1000	27 1000	24.0	361	P	1.1	26								
	27 1000	28 1015	24.2	364	P	4.1	99	0.54	13	ND	ND	ND	ND	ND	ND
	28 1015	29 1000	23.7	357	P	0.77	18				NGS				
Ridgecrest, Calif.	26 1310	27 1347	26.6	455	P	0.12	3.2	ND	ND	ND	ND	ND	ND	ND	ND
	27 1352	28 1301	23.2	409	P	0.41	9.5	0.28	6.5	ND	ND	ND	ND	ND	ND
	28 1309	29 1520	24.1	474	P	0.22	5.3	ND	ND	ND	ND	ND	ND	ND	ND
Shoshone, Calif.	25 1008	26 1037	24.4	455	P	0.01	0.24				NGS				
	26 1039	27 1738	31.2	566	P	64	2000	9.31	290	29	910	99.3	3,100	ND	ND
	27 1741	28 1604	22.4	441	P	1.6	36				NGS				
	28 1608	29 1900	26.7	512	P	1.1	29								
	29 1903	30 1655	22.0	410	P	0.70	15.	ND	ND	ND	ND	ND	ND	ND	ND

Appendix I. Additional Air Sampling Results, April, 1966 (continued)

Location	Sampling Period Start Day Hr	Stop Day Hr	Total Time (Hr)	Collection Sample Volume (m^3)	Collector	Beta Activity (pCi/m^3)	Beta Exposure ($pCi \cdot hr/m^3$)	Results ^{131}I (pCi/m^3)	^{131}I ($pCi \cdot hr/m^3$)	^{89}Sr (pCi/m^3)	^{89}Sr ($pCi \cdot hr/m^3$)	^{90}Sr (pCi/m^3)	^{90}Sr ($pCi \cdot hr/m^3$)
Denver, Colo.	26 0900	27 0900	23.9	495	P	1.1	11	0.27	6.4	ND	ND	ND	ND
	26 0900	27 0900	23.9	495	C			ND	ND	ND	ND	ND	ND
	27 0900	28 0915	24.2	489	P	0.13	1.1	ND	ND	ND	ND	ND	ND
	27 0900	28 0915	24.2	489	C			ND	ND	ND	ND	ND	ND
Durango, Colo.	25 1830	26 1829	24.0	485	P	2.0	48	0.32	7.7	1.7	41	1.2	77	ND	ND
	25 1830	26 1829	24.0	485	C			0.42	10	ND	ND	ND	ND	ND	ND
	26 1830	27 1830	24.0	472	P	0.41	9.8	ND	ND	ND	ND	ND	ND	ND	ND
	26 1830	27 1830	24.0	472	C			ND	ND	ND	ND	ND	ND	ND	ND
	27 1832	28 1830	23.9	981	P	0.22	5.2	ND	ND	ND	ND	ND	ND	ND	ND
Alamo, Nevada	25 0730	26 0725	23.8	407	P	710	17,000	57	1,400	140	1,100	110	2,600	220	5,200
	25 0730	26 0725	23.8	407	C			19	450	84	2,000	78	1,800	100	2,400
	26 0725	27 0745	24.3	453	P	44	1,100	2.0	49	4.2	100	1.6	87	ND	ND
	26 0725	27 0745	24.3	453	C			ND	ND	ND	ND	ND	ND	ND	ND
	27 0745	28 0805	24.2	464	P	0.53	13	ND	ND	ND	ND	ND	ND	ND	ND
	27 0745	28 0805	24.2	464	C			0.80	21	ND	ND	1.1	27	ND	ND
	28 0805	29 0715	23.2	445	P	3.1	72	24	560	ND	ND	ND	ND	ND	ND
	28 0805	29 0715	23.2	445	C			0.77	18	ND	ND	ND	ND	ND	ND
	29 0715	30 0725	24.1	437	P	1.4	34	ND	ND	ND	ND	ND	ND	ND	ND
	29 0715	30 0725	24.1	437	C			0.53	13	ND	ND	ND	ND	ND	ND
	30 0725	01 0735	24.2	476	P	0.40	9.7	ND	ND	ND	ND	ND	ND	ND	ND
	30 0725	01 0735	24.2	476	C			0.45	11	ND	ND	ND	ND	ND	ND
	01 0735	02 0740	24.1	437	P	0.31	7.5	ND	ND	ND	ND	ND	ND	ND	ND
	01 0735	02 0740	24.1	437	C			ND	ND	ND	ND	ND	ND	ND	ND
	02 0740	03 0700	23.2	433	P	0.31	7.1	ND	ND	ND	ND	ND	ND	ND	ND
	02 0740	03 0700	23.2	433	C			ND	ND	ND	ND	ND	ND	ND	ND
	03 0700	04 0730	24.5	482	P	1.11	2.	ND	ND	ND	ND	ND	ND	ND	ND
	03 0700	04 0730	24.5	482	C			0.50	12	ND	ND	ND	ND	ND	ND

Appendix I. Additional Air Sampling Results, April, 1966 (continued)

Location	Collection Sampling Period Start Day	Hr	Stop Day	Hr	Total Time (Hr)	Sample Volume (m^3)	Col-lector	Beta Activity (pCi/m^3)	Beta Exposure ($pCi\text{-}hr/m^3$)	Results ^{131}I pCi/m^3	^{131}I $pCi\text{-}hr/m^3$	$^{132}Te\text{-}I$ pCi/m^3	$^{132}Te\text{-}I$ $pCi\text{-}hr/m^3$	^{133}I pCi/m^3	^{133}I $pCi\text{-}hr/m^3$	^{135}I pCi/m^3	^{135}I $pCi\text{-}hr/m^3$
Alamo Nevada (continued)	04	0730	05	0715	23.8	420	P	0.39	9.4				NGS*				
	04	0730	05	0715	23.8	420	C										
	05	0715	06	0700	23.7	430	P	0.13	3.0								
	05	0715	06	0700	23.7	430	C										
Ash Springs, Nevada	25	1430	25	1755	3.4	35	P	25,000	85,000	5,300	18,000	18,000	61,000	5,600	19,000	32,000	110,000
	25	1430	25	1755	3.4	35	C			130	430	950	3,200	290	990	6,300	21,000
	25	1755	26	1210	18.3	187	P	98	1,800	9.3	170	18	330	17	310	32	590
	25	1755	26	1210	18.3	187	C			9.1	170	ND	ND	48	880	ND	ND
Caliente, Nevada	25	0830	25	1910	10.6	230	P	120	1,300	7.0	74	15	160	17	180	ND	ND
	25	1510	25	1910	4.0	92	C			7.6	30	ND	ND	31	120	ND	ND
	25	1915	26	0830	13.2	287	P	6.8	90	ND	ND	ND	ND	ND	ND	ND	ND
	25	1915	26	0830	13.2	287	C			1.2	16	0.65	8.6	2.5	33	1.7	22
	26	0830	27	0845	24.2	526	P	0.64		ND	ND	ND	ND	ND	ND	ND	ND
	26	0830	27	0845	24.2	526	C			ND	ND	ND	ND	ND	ND	ND	ND
	27	0845	28	0810	23.2	493	P	0.14	3.2	ND	ND	ND	ND	ND	ND	ND	ND
	28	0810	29	0825	24.2	514	P	0.74	18	ND	ND	ND	ND	ND	ND	ND	ND
	29	0825	30	0825	24.0	509	P	0.36	8.6	ND	ND	ND	ND	ND	ND	ND	ND
	30	0825	01	0730	23.0	488	P	0.10	2.1				NGS*				
Currant, Nevada	25	0715	26	0715	24.4	543	P	0.06	1.3	ND	ND	ND	ND	ND	ND	ND	ND
	25	0715	26	0715	24.4	543	C			0.41	10	ND	ND	ND	ND	ND	ND
	26	0715	27	0715	24.5	545	P	0.16	3.9	ND	ND	ND	ND	ND	ND	ND	ND
	26	0715	27	0715	24.5	545	C			0.76		ND	ND	ND	ND	ND	ND
	27	0715	28	0715	24.4	543	P	0.10	2.4				NGS*				
	27	0715	28	0715	24.4	543	C			ND	ND	ND	ND	ND	ND	ND	ND
Geyser Maint. Sta., Nevada	25	1608	26	1600	24.6	459	P	5.7	140	1.2	30	ND	ND	4.0	98	ND	ND
	26	1603	27	1615	23.6	465	P	0.17	4.0	ND	ND	ND	ND	ND	ND	ND	ND
	27	1618	28	1825	26.6	483	P	0.16	4.3	ND	ND	ND	ND	ND	ND	ND	ND

Appendix I. Additional Air Sampling Results, April, 1966 (continued)

Location	Collection Sampling Period Start Day	Hr	Stop Day	Hr	Total Time (Hr)	Sample Volume (m^3)	Col-lector	Beta Activity (pCi/m^3)	Beta Exposure ($pCi\text{-}hr/m^3$)	Results ^{131}I pCi/m^3	^{131}I $pCi\text{-}hr/m^3$	$^{132}Te\text{-}I$ pCi/m^3	^{132}I $pCi\text{-}hr/m^3$	^{133}I pCi/m^3	^{133}I $pCi\text{-}hr/m^3$	^{135}I pCi/m^3	^{135}I $pCi\text{-}hr/m^3$
Groom Lake - 18 mi. NE, Nevada	25	1400	25	1535	1.6	32	P	45,000	72,000	5,100	8,200	38,000	61,000	12,000	19,000	78,000	120,000
	25	1400	25	1535	1.6	32	C			290	460	2,600	4,200	880	1,400	16,000	26,000
Hancock Summit, Nevada	25	1435	25	1745	3.1	32	P	34,000	110,000	2,600	8,100	8,900	28,000	3,000	9,300	17,000	53,000
	25	1435	25	1745	3.1	32	C			170	530	1,500	4,600	660	2,000	10,000	31,000
Hancock Summit - 6.5 mi. W, Nevada	25	1413	25	1700	2.8	26	P	50,000	140,000	3,500	9,700	12,000	34,000	4,100	11,000	19,000	53,000
	25	1413	25	1700	2.8	26	C			150	420	1,200	3,400	500	1,400	7,800	22,000
Hiko - Crystal Springs, Nevada	25	1430	25	1810	3.7	35	P	21,000	78,000	1,600	5,900	6,800	25,000	1,900	7,000	10,000	37,000
	25	1430	25	1810	3.7	35	C			400	1,500	1,200	4,400	800	3,000	7,000	26,000
	25	0810	25	1800	10.9	226	P	3,500	38,000	510	5,600	1,900	21,000	650	7,100	5,600	59,000
	25	0810	25	1800	10.9	226	C			39	435	330	3,600	150	1,600	1,700	19,000
	25	1800	26	0950	14.0	290	P	100	1,400	9.6	130	22	300	16	220	27	380
	25	1800	26	0950	14.0	290	C			52	730	84	1,200	290	4,100	86	1,200
	26	0950	27	0800	22.1	458	P	16	360	3.1	69	8.8	200	12	270	ND	ND
	26	0950	27	0800	22.1	458	C			1.7	38	0.97	21	7.1	160	ND	ND
	27	0800	28	0800	24.0	497	P	0.58	14	ND	ND	ND	ND	ND	ND	ND	ND
	27	0800	28	0800	24.0	497	C			ND	ND	ND	ND	ND	ND	ND	ND
	28	0800	29	0805	24.1	499	P	4.7	110	0.84	20	ND	ND	ND	ND	ND	ND
	28	0800	29	0805	24.1	499	C			0.71	17	ND	ND	ND	ND	ND	ND
	29	0805	30	0805	24.0	497	P	0.60	14	0.20	4.8	ND	ND	ND	ND	ND	ND
	29	0805	30	0805	24.0	497	C			0.57	14	ND	ND	ND	ND	ND	ND
	30	0805	01	0805	24.0	497	P	0.54	13	ND	ND	ND	ND	ND	ND	ND	ND
	30	0805	01	0805	24.0	497	C			0.62	15	ND	ND	ND	ND	ND	ND
	01	0805	02	0805	24.0	497	P	0.24	5.7	ND	ND	ND	ND	ND	ND	ND	ND
	01	0805	02	0805	24.0	497	C			ND	ND	ND	ND	ND	ND	ND	ND

Appendix I. Additional Air Sampling Results, April, 1966 (continued)

Location	Collection Sampling Period Start Day	Hr	Stop Day	Hr	Total Time (Hr)	Sample Volume (m^3)	Collector	Beta Activity (pCi/m^3)	Beta Exposure ($pCi-hr/m^3$)	Results ^{131}I pCi/m^3	$pCi-hr/m^3$	^{137}Cs pCi/m^3	$pCi-hr/m^3$	^{103}I pCi/m^3	$pCi-hr/m^3$	^{140}I pCi/m^3	$pCi-hr/m^3$
Lathrop Wells, Nevada	25	0635	26	0635	23.9	483	P	0.10	2.4	ND	ND	ND	ND	ND	ND	ND	ND
	25	0635	26	0635	23.9	483	C						NGS				
	26	0635	27	0625	23.8	469	P	2.8	67	0.48	11	ND	ND	ND	ND	ND	ND
	26	0635	27	0625	23.8	469	C						NGS				
	27	0625	28	0545	23.3	471	P	0.77	18	ND	ND	ND	ND	ND	ND	ND	ND
	27	0625	28	0545	23.3	471	C						NGS				
	28	0545	29	0605	24.2	476	P	0.91									
	28	0545	29	0605	24.2	476	C										
	29	0605	01	0605	48.0	945	P	0.24									
	29	0605	01	0605	48.0	945	C			ND	ND	ND	ND	ND	ND	ND	ND
Moapa - Warm Springs Ranch, Nevada	25	0800	26	0800	23.0	476	P	0.13	3	ND	ND	ND	ND	ND	ND	ND	ND
	25	0800	26	0800	23.0	476	C			ND	ND	ND	ND	ND	ND	ND	ND
	26	0800	27	0830	24.5	470	P	0.42	10	0.20	4.9	ND	ND	ND	ND	ND	ND
	26	0800	27	0830	24.5	470	C			ND	ND	ND	ND	ND	ND	ND	ND
	27	0830	28	0800	23.5	451	P	0.27	6.3	ND	ND	ND	ND	ND	ND	ND	ND
	27	0830	28	0800	23.5	451	C			ND	ND	ND	ND	ND	ND	ND	ND
	28	0800	29	0800	24.0	497	P	1.1	26	ND	ND	ND	ND	ND	ND	ND	ND
	28	0800	29	0800	24.0	497	C			ND	ND	ND	ND	ND	ND	ND	ND
	29	0800	30	0800	24.0	460	P	0.42	10	ND	ND	ND	ND	ND	ND	ND	ND
	29	0800	30	0800	24.0	460	C			ND	ND	ND	ND	ND	ND	ND	ND
Pahrump, Nevada	25		26		23.6	440	P	0.12	2.8				NGS				
	26	1200	27	1200	24.1	450	P	12.0	290	1.81	44	5.1	120	ND	ND	ND	ND
	27	1200	29	1200	48.0	846	P	1.4	67	ND	ND	ND	ND	ND	ND	ND	ND
	29	1200	30	1200	23.7	442	P	0.31	7.3	ND	ND	ND	ND	ND	ND	ND	ND
	30	1200	01	1200	24.3	478	P	0.31	7.5	ND	ND	ND	ND	ND	ND	ND	ND

Appendix I. Additional Air Sampling Results, April, 1966 (continued)

Location	Sampling Period Start Day	Hr	Stop Day	Hr	Total Time (Hr)	Collection Sample Volume (m^3)	Col-lector	Beta Activity (pCi/m^3)	Beta Exposure ($pCi\text{-}hr/m^3$)	Results ^{131}I pCi/m^3	$pCi\text{-}hr/m^3$	^{131}I-I pCi/m^3	$pCi\text{-}hr/m^3$	^{133}I pCi/m^3	$pCi\text{-}hr/m^3$	^{135}I pCi/m^3	$pCi\text{-}hr/m^3$
Pioche, Nevada	25	0800	25	1520	7.4	153	P	0.19	1.4				NGS				
	25	1525	25	1928	3.9	81	P	2,200	9,000	1,100	4,500	200	800	350	1,400	ND	ND
	25	1525	25	1928	3.9	81	C			53	200	40	160	250	970	600	2,300
	25	1925	26	0800	12.0	242	P	140	1,700	11	130	24	290	21	250	63	760
	25	1925	26	0800	12.0	242	C			7.1	85	ND	ND	23	280	25	100
	26	0800	27	0800	24.0	472	P	1.8	41	0.56	13	ND	ND	1.09	26	ND	ND
	27	0800	28	0800	24.0	485	P	0.37	8.9	ND	ND	ND	ND	ND	ND	ND	ND
	28	0800	29	0800	24.0	497	P	1.0	24	ND	ND	ND	ND	ND	ND	ND	ND
	29	0800	30	0800	24.0	497	P	0.48	12	ND	ND	ND	ND	ND	ND	ND	ND
Cedar City, Utah	25	1225	26	1225	24.0	485	P	1.5	36	0.25	6	ND	ND	ND	ND	ND	ND
	25	1225	26	1225	24.0	485	C			ND	ND	ND	ND	ND	ND	NE	ND
	26	1225	27	1445	26.3	518	P	0.13	3.4	ND	ND	ND	ND	ND	ND	ND	ND
	26	1225	27	1445	26.3	518	C			NE	ND	ND	ND	ND	ND	ND	ND
Garrison, Utah	25	0800	26	0800	23.7	503	P	96	232	8.6	200	22	520	38	900	ND	ND
	26	0800	27	0800	24.0	497	P	0.33	8	ND	ND	ND	ND	ND	ND	ND	ND
Headquarters Desert Experimental Station, Utah	25	0815	26	0830	23.9	507	P	87	2,100	4.1	100	11	260	17	410	ND	ND
	26	0833	27	0814	23.3	459	P	1.3	30	ND	ND	ND	ND	ND	ND	ND	ND
	27	0815	28	0808	23.6	501	P	0.09	2.1	ND	ND	ND	ND	ND	ND	ND	ND
Provo, Utah	25	0852	26	0855	24.0	449	P	33	790	1.2	29	1.4	32	4.6	130	ND	ND
	26	0855	27	0900	24.1	437	P	0.66	16	ND	ND	ND	ND	ND	ND	ND	ND
	26	0855	27	0900	24.1	437	C			ND	ND	ND	ND	ND	ND	ND	ND
	27	0900	28	0900	24.0	411	P	0.09	2.2	ND	ND	ND	ND	ND	ND	ND	ND
	27	0900	28	0900	24.0	411	C			ND	ND	ND	ND	ND	ND	ND	ND

Appendix I. Additional Air Sampling Results, April, 1966 (continued)

Location	Sampling Period Start Day	Hr	Stop Day	Hr	Total Time (Hr)	Collection Sample Volume (m^3)	Col-lector	Beta Activity (pCi/m^3)	Beta Exposure ($pCi-hr/m^3$)	Results ^{131}I pCi/m^3	$pCi-hr/m^3$	$^{132}Te-I$ pCi/m^3	$pCi-hr/m^3$	^{133}I pCi/m^3	$pCi-hr/m^3$	^{135}I pCi/m^3	$pCi-hr/m^3$
Salt Lake City, Utah	25	0840	26	0840	24.0	472	P	1.7	41	ND	ND	ND	ND	ND	ND	ND	ND
	26	0840	27	0840	24.0	497	P	0.01	2.5	0.38	9.1	ND	ND	1.0	24	ND	ND
	27	0840	28	0845	24.0	497	P	0.08	1.8	ND	ND	ND	ND	ND	ND	ND	ND

Notes: NGS - Not gamma scanned. ND - Not detected. P = Prefilter C = Charcoal cartridge

Appendix II. Complete Water Sampling Data

Samples designated as "Tap" indicate water taken from taps in a dwelling place regardless of the source of the water. Those designated "Spring" were collected at the spring regardless of the subsequent use of the water. Samples labeled "Tank" were taken from a stock tank or trough, and were not used for human consumption with one important exception. The domestic tap supply at the Davis Ranch near Hiko, Nevada, consisted of a pipe connected directly to the stock tank.

Additional samples were collected at the L. Lee Dairy at Alamo, and the Schofield Dairy at Hiko. These samples were collected as part of a special research project conducted by the Bioenvironmental Research program and were reported separately in the final report on Pin Stripe by this program (SWRHL-41r).

Appendix II. Complete Water Sampling Data

Location	Source	Date Collected	Gross Alpha	Gross Beta	^{131}I	$^{132}Te\text{-}I$	^{133}I	^{135}I
			pCi/l					
23 miles south of Pipe Spgs. Nat'l Monument Arizona	Tank	5/02/66	1.7	29				
Fredonia, Arizona 1/2 mile west	Pond	5/01/66	5.8	24				
15 miles west of Pipe Spgs. Nat'l Monument Arizona	Spring	4/30/66	1.4	< 1				
Jacob Lake, Arizona	Pond	5/01/66	2.1	20				
Moccasin Indian School Moccasin, Arizona	Pond	4/30/66	<0.1	< 1				
Kaibab Nat'l Forest Camp Mt. Trumbull, Ariz.	Pond	5/02/66	0.6	6				
Mt. Trumbull, Arizona	Tank	5/02/66	0.3	131				
Kanab, Utah Jackson Reservoir	Lake	5/01/66	<0.1	25				
Orderville Ranch Chamberlain, Utah	Tank	5/01/66	<0.1	5				
Butler Ranch, Nevada 31 mi. S Alamo	Pond		0.7	5				
Alamo, Nevada Frehner Dairy	Tank	4/26/66	1.1	27	8.0	30	60	40
	Tank	4/27/66	<0.1	41	110			
	Tank	4/28/66	<0.1	32	90			
	Tank	4/29/66	0.7	11				
	Tank	4/30/66	<0.1	17				
	Tank	5/01/66	2.8	21				
	Tank	5/02/66	<0.1	21				
	Tank	5/07/66	2.5	12				
	Tank	5/10/66	1.4	23				
	Tank	5/13/66	<0.1	25				

Appendix II. Complete Water Sampling Data(continued)

Location	Source	Date Collected	Gross Alpha	Gross Beta	^{131}I	$^{132}Te\text{-}I$	^{133}I	^{135}I
			pCi/l					
Alamo, Nevada								
L. Lee Dairy	Tank	4/26/66	1.4	38	80	30	80	
Alamo, Nevada								
Mann Ranch	Tank	5/01/66	1.7	39				
	Tank	5/02/66	<0.1	42				
Alamo, Nevada								
A. Sharp Ranch	Tank	4/26/66	<0.1	54	200	50	60	120
	Tap	4/27/66	0.3	32				
	Tank	4/28/66	0.3	19	120			
	Tank	4/29/66	0.7	14				
	Tank	4/30/66	0.3	10				
	Tank	5/01/66	<0.1	12				
	Tank	5/02/66	1.7	12				
	Tank	5/05/66	1.7	17				
	Tank	5/06/66	0.6	12				
	Tank	5/07/66	1.7	13				
	Tank	5/08/66	<0.1	16	110			
	Tank	5/09/66	1.4	24				
	Tank	5/10/66	5.5	32				
Alamo, Nevada								
Leo Stewart Dairy	Tank	4/25/66	NGA	NGB		280	250	410
	Tank	4/26/66	1.5	28	130			
	Tank	4/27/66	0.3	19				
	Tank	4/28/66	1.7	29				
	Tank	4/29/66	1.4	25				
	Tank	4/30/66	<0.1	13				
	Tank	5/01/66	<0.1	16				
	Tank	5/02/66	<0.1	28				
	Tank	5/07/66	1.1	19				
	Tank	5/10/66	1.1	31				
	Tank	5/13/66	<0.1	35				
Pahranagat Lake, Nevada	Lake	4/27/66	6.5	34				
Alamo, Nevada								
M. K. Stewart	Tank	4/26/66	1.1	96	220	130	130	160

NGA - no gross alpha
NGB - no gross beta

Appendix II. Complete Water Sampling Data (continued)

Location	Source	Date Collected	Gross Alpha	Gross Beta	^{131}I	$^{132}Te\text{-}I$	^{133}I	^{135}I
			pCi/l					
Alamo, Nevada								
M.K. Stewart	Tank	4/27/66	0.6	27				
	Tank	4/28/66	1.1	26				
	Tank	4/29/66	<0.1	13				
	Tank	4/30/66	0.6	23				
	Tank	5/01/66	0.6	13				
	Tank	5/02/66	<0.1	13				
	Tank	5/10/66	1.4	19				
	Tank	5/13/66	<0.1	25				
Alamo, Nevada								
Wright Dairy	Tank	4/26/66	1.4	36	200	70	80	130
	Tank	4/27/66	0.3	25				
	Tank	4/28/66	1.1	15				
	Tank	4/29/66	1.3	14				
	Tank	4/30/66	3.9	17				
	Tank	5/01/66	1.1	6				
	Tank	5/02/66	<0.1	6				
Ash Springs Nevada	Stream	4/25/66	NGA	NGB	230	330	480	440
Caliente, Nevada 1 mile north	Spring	4/27/66	1.4	26				
Caliente, Nevada 4 miles north	Pond	5/01/66	5.0	19				
Caliente, Nevada 3 miles north on Beaver Dam Road	Spring	5/01/66	2.8	13				
Caliente, Nevada								
Raymond Ranch	Pond	4/30/66	0.6	10				
	Pond	5/02/66	1.1	16				
	Pond	5/03/66	1.4	13				
	Pond	5/06/66	1.4	10				
Caliente, Nevada								
Oxborrow Ranch	Tap	4/30/66	1.7	7				
	Tap	5/03/66	0.3	4				
	Tap	5/06/66	1.1	5				

NGA - no gross alpha
NGB - no gross beta

Appendix II. Complete Water Sampling Data (continued)

Location	Source	Date Collected	Gross Alpha	Gross Beta	^{131}I	$^{132}Te\text{-}I$	^{133}I	^{135}I
			pCi/l					
Caliente, Nevada								
Mathew's Ranch	Spring	4/28/66	<0.1	< 1				
Caliente, Nevada								
Charlton Ranch	Spring	4/27/66	1.4	16				
	Spring	4/28/66	4.4	8				
	Tap	4/29/66	0.7	8				
	Tap	4/30/66	2.2	9				
	Tap	5/01/66	0.3	11				
	Tap	5/02/66	2.8	6				
Caliente, Nevada								
Tennille Ranch	Tap	5/02/66	13	32				
	Tap	5/03/66	8.3	36				
	Tap	5/06/66	1.7	7				
Caliente, Nevada								
Young Ranch	Spring	4/26/66	1.7	17				
	Spring	4/27/66	2.5	16				
	Stream	4/27/66	0.6	8				
	Spring	4/28/66	6.9	20				
	Spring	4/29/66	1.1	10				
	Spring	4/30/66	1.1	17				
	Spring	5/01/66	4.7	10				
	Spring	5/03/66	2.8	9				
Diablo, Nevada	Tap	5/10/66	0.3	8				
Elgin, Nevada								
Ballow Ranch	Stream	4/29/66	0.3	8				
	Spring	4/29/66	3.3	10				
	Stream	4/30/66	1.7	12				
	Spring	4/30/66	1.7	2				
	Stream	5/01/66	0.3	7				
	Spring	5/01/66	3.6	12				
	Tap	5/02/66	1.1	3				
Hiko, Nevada								
Hiko pond	Pond	4/27/66	5.8	92	70		110	
Hiko, Nevada								
Fish & Game Dept.	Pond	4/28/66	1.7	23	60			

Appendix II. Complete Water Sampling Data (continued)

Location	Source	Date Collected	Gross Alpha	Gross Beta	^{131}I	$^{132}Te\text{-}I$	^{133}I	^{135}
			pCi/l					
Hiko, Nevada								
Crystal Springs	Spring	4/27/66	<0.1	10				
Hiko, Nevada								
Davis Ranch	Tap	4/26/66	1.4	151	3860	80	270	
	Tap	4/27/66	<0.1	35	50	30	60	
	Tap	4/28/66	2.5	19	30			
	Tap	4/29/66	5.0	29				
	Tap	4/30/66	3.3	8	40			
	Tap	5/01/66	3.6	14				
	Tap	5/02/66	4.7	11				
	Tap	5/03/66	3.3	10				
	Tap	5/04/66	3.3	17				
	Tap	5/05/66	3.9	8				
	Tap	5/06/66	3.6	13				
	Tap	5/07/66	2.8	16				
	Tap	5/08/66	2.5	14				
	Tap	5/09/66	3.9	12				
	Tap	5/13/66	<0.1	11				
Hiko, Nevada								
Schofield Dairy	Tank	4/25/66	NGA	NGB	500	820	1100	940
	Tank	4/26/66	6.9	136				
	Tank	4/27/66	3.6	79			140	
	Tap	4/27/66	4.4	30				
Panaca, Nevada								
C & G Ranch	Spring	4/27/66	1.4	16				
	Spring	4/28/66	4.4	8	70			
	Spring	4/29/66	0.3	18				
	Spring	4/30/66	0.3	12				
	Spring	5/01/66	0.3	4				
	Tap	5/02/66	2.8	8				
Panaca, Nevada								
E. Deck Ranch	Tap	4/26/66	<0.1	8				
	Spring	4/27/66	<0.1	9				
	Spring	4/28/66	0.3	9				
	Spring	4/29/66	0.7	20				
	Spring	4/30/66	<0.1	25				
	Tank	5/11/66	0.3	21				

NGA - no gross alpha
NGB - no gross beta

Appendix II. Complete Water Sampling Data (continued)

Location	Source	Date Collected	Gross Alpha	Gross Beta	^{131}I	$^{132}Te\text{-}I$	^{133}I	^{135}I
			pCi/l					
Panaca, Nevada								
K. Lee Ranch	Tank	4/26/66	0.6	36				
	Tap	5/02/66	2.2	2				
	Tap	5/03/66	2.8	7				
	Tap	5/06/66	1.7	8				
Pioche, Nevada								
Delmue Ranch	Stream	4/27/66	1.4	20				
	Stream	4/28/66	1.4	14				
	Stream	4/29/66	2.5	19				
	Stream	4/30/66	3.3	11				
	Stream	5/01/66	1.7	13				
Pioche, Nevada								
Rose Valley Ranch	Stream	4/26/66						
	Stream	4/27/66	2.8	15				
	Stream	4/29/66	5.8	15				
	Stream	4/30/66	3.9	17				
	Stream	5/01/66	0.9	21				
Pioche, Nevada								
Horlacher Ranch	Tap	5/03/66	0.6	2				
Pioche, Nevada								
County Courthouse	Tap	4/26/66	<0.1	7				
	Tap	4/27/66	1.4	20				
Sunnyside, Nevada								
Adams-McGill Res	Lake	5/05/66	1.7	18				
Ursine, Nevada								
Meadow Valley Res	Lak	4/30/66	1.7	11				
Ursine, Nevada								
3.9 miles north of Meadow Valley Res	Stream	4/30/66	2.5	17				
Ursine, Nevada								
1/4 mile west	Stream	4/29/66	4.4	10				
	Stream	4/30/66	1.4	12				
	Stream	5/01/66	2.8	14				
Ursine, Nevada								
6.8 miles northeast	Stream	5/01/66	1.1	16				

ppendix II. Complete Water Sampling Data (continued)

Location	Source	Date Collected	Gross Alpha	Gross Beta	^{131}I	$^{132}Te\text{-}I$	^{133}I	^{135}I
rsine, Nevada								
7 miles north	Stream	4/26/66	<0.1	23	60		70	120
	Stream	4/29/66	<0.1	14				
rsine, Nevada								
13 miles north in Eagle Valley	Tank	4/29/66	1.1	15				
rsine, Nevada								
16 miles north in	Tank	4/29/66	1.4	42				
Eagle Valley	Tank	5/01/66	1.1	14				
rsine, Nevada								
Eagle Valley Lake	Lake	4/27/66	<0.1	42				
	Lake	4/28/66	3.9	13				
	Lake	4/29/66	3.3	15				
rsine, Nevada								
Eagle Valley Creek	Stream	4/27/66	4.5	20				
	Stream	4/28/66	<0.1	<1.0				
	Stream	4/28/66	0.6	13				
	Stream	4/28/66	0.6	19				
rsine, Nevada								
Donahue Ranch	Tank	4/28/66	4.7	60				
	Tank	4/29/66	2.2	4				
	Tank	5/01/66	0.8	8				
	Tank	5/02/66	1.1	5				
	Stream	5/03/66	6.1	21				
	Stream	5/06/66	3.6	5				
rsine, Nevada								
Lytle Ranch	Tank	4/26/66	<0.1	23	280	90	90	40
	Tank	4/27/66	1.4	10				
	Tank	4/28/66	2.2	15				
	Tank	4/29/66	<0.1	10				
	Tank	4/30/66	2.2	14				
	Tank	5/01/66	2.3	16				
	Tank	5/02/66	2.2	5				
	Tank	5/03/66	1.7	6				
rsine, Nevada								
McCrosky Ranch	Tap	5/02/66	<0.1	9				

Appendix III. Vegetation Sampling Data

Samples designated as "hay", "pasture", "green chop", or "silage" were collected to be representative of dairy cattle feed at milk sampling locations. Hay, as listed in the Appendix, is dry vegetation in storage which may or may not have been covered during cloud passage. "Natural" refers to any naturally growing or native vegetation which was not being used as dairy cattle feed.

Appendix III. Vegetation Sampling Data

Location	Date Collected	No. of Samples	Type	Fresh fission Products
Alamo, Nevada				
Frehner Dairy	4/26	1	Silage	P
	4/27	1	Hay	ND
	4/28	1	Silage	
	4/29,30	2	Silage	ND
	5/01	1	Hay	P
	5/02	1	Silage	ND
	5/6,7,8,9			
	5/10,13	6	Green chop	P
L. Lee Dairy	4/26	2	Green chop	P
	4/27,29,30	4	Grain	P
	4/28	1	Grain	ND
	4/29,30	2	Grain	P
	5/1,3,5,8	4	Grain	P
	5/2,3,6,7	4	Grain	ND
	5/9,10,11,12	4	Grain	ND
	5/13	1	Grain	P
	5/1,6,7,8,9	5	Fresh alfalfa	P
	5/10,11,12,13	7	Fresh alfalfa	P
	4/26,28,29,30	4	Hay	P
	4/27,30	2	Hay	ND
	5/2,3,4,5	8	Hay	P
	5/7,9,11,12	4	Hay	P
	5/6,7,8,10,13	6	Hay	ND
	4/26,27	36	Green Chop	P
	4/28,29,30	4	Green Chop	P
	5/1,2,3,4	11	Green Chop	P
	5/5,6,7,8	8	Green Chop	P
	5/9,11,13,25	4	Green Chop	P
Mann Ranch	5/1,2	2	Hay	ND
Sharp Ranch	4/26,27,28,28,30	5	Pasture	P
	4/26	1	Hay	P
	5/1-10	10	Pasture	P
Leo Stewart	4/25,26	2	Hay	P
	4/27	1	Hay	ND
	4/28	1	Green Chop	P
	4/29,30	2	Hay	P

P -positive
ND-not detectable

Appendix III. Vegetation Sampling Data(continued)

Location	Date Collected	No. of Samples	Type	Fresh fission Products
Alamo, Nevada(continued)				
Leo Stewart (continued)				
	5/1,2	2	Hay	ND
	5/6,7,8,10,13	5	Green Chop	P
M. K. Stewart Dairy	4/25	1	Hay	P
	4/26,27,28	3	Green Chop	P
	4/29,30	2	Silage	ND
	5/1,2	2	Silage	ND
	5/10,13	2	Green Chop	P
Wright Dairy	4/26	1	Silage	P
	4/27	1	Hay	P
	4/28,29,30	3	Hay	ND
	5/1,2	2	Hay	ND
Highway 93 at Alamo	4/28	1	Natural	P
5 mi S of Alamo	4/28	1	Natural	P
10 mi S of Alamo	4/28	1	Natural	P
15 mi S of Alamo	4/28	1	Natural	P
20 mi S of Alamo	4/28	1	Natural	P
25 mi S of Alamo	4/28	1	Natural	P
29.5 mi S of Alamo (Butler Ranch turnoff)	4/28	1	Natural	P
Caliente, Nevada				
Charlton Ranch	4/27,28,29	3	Green Chop	ND
L. Mathews Ranch	4/28,29,30	3	Pasture	P
	4/28	1	Green Chop	P
	4/29,30	2	Hay	ND
	5/1	1	Pasture	P
	5/1	1	Hay	ND
Oxborrow Ranch	4/30 & 5/1	2	Hay	ND
Raymond Ranch	4/30 & 5/1	2	Pasture	ND
	5/2,3	2	Hay	ND
Tennille Ranch	4/30	1	Pasture	ND
	5/1	1	Pasture	P

P -positive
ND-not detectable

Appendix III. Vegetation Sampling Data(continued)

Location	Date Collected	No. of Samples	Type	Fresh fissio Products
Caliente, Nevada(continued)				
Young Ranch	4/26	1	Hay	P
	4/27,30	2	Hay	ND
	4/26.27.29,30	4	Pasture	P
	4/28	1	Natural	P
	4/29	1	Green Chop	ND
	5/1	1	Hay	ND
	5/1	1	Pasture	P
Highway 93 at Caliente	4/28,29 and 30	3	Natural	P
	5/1	1	Natural	P
1 mi N of Caliente	4/26,27	2	Natural	P
4 mi N of Caliente	4/26,27	2	Natural	P
5 mi N of Caliente	4/28,29	2	Natural	P
5 mi N of Caliente	4/30	1	Natural	ND
5 mi N of Caliente	5/1	1	Natural	P
7 mi N of Caliente	4/26,27	2	Natural	P
10 mi N of Caliente	4/26,27,28 29, and 30	5	Natural	P
10 mi N of Caliente	5/1	1	Natural	ND
13 mi N of Caliente	4/27	1	Natural	P
15 mi N of Caliente	4/28,29,30	3	Natural	P
15 mi N of Caliente	5/1	1	Natural	P
16 mi N of Caliente	4/26,27	2	Natural	P
19 mi N of Caliente	4/26,27	2	Natural	P
22 mi N of Caliente	4/26,27	2	Natural	P
Elgin, Nevada				
Blue Ranch	4/29	1	Green Chop	ND
	4/30 & 5/1	2	Hay	ND
Highwav 93, Glendale, Nev.	4/30	1	Natural	ND
5 mi N of Glendale	4/30	1	Natural	ND
10 mi N of Glendale	4/30	1	Natural	ND
15 mi N of Glendale	4/30	1	Natural	P
20 mi N of Glendale	4/30	1	Natural	ND
25 mi N of Glendale	4/30	1	Natural	P
30 mi N of Glendale (Butler Ranch turnoff)	4/30	1	Natural	P

P -positive
ND-not detectable

Appendix III. Vegetation Sampling Data (continued)

Location	Date Collected	No. of Samples	Type	Fresh fission Products
Hiko, Nevada				
Davis Ranch	4/26-30	5	Pasture	P
	5/1-7	7	Pasture	P
	5/8, 9, 13, 25	4	Pasture	P
Schofield Dairy	4/25	1	Pasture	P
	4/26-29	6	Hay	P
	4/30	1	Hay	ND
	4/30 & 5/1	2	Hay	P
	5/1	1	Hay	ND
	5/2-6	9	Hay	P
	5/6&7	2	Hay	ND
	5/7-10	5	Hay	P
	5/11, 12/13	3	Hay	P
	4/26, 28, 29, 30	5	Fresh alfalfa	P
	5/1-6	11	Fresh alfalfa	P
	5/7-11	10	Fresh alfalfa	P
	5/12 & 5/13	4	Fresh alfalfa	P
	5/13	1	Fresh alfalfa	ND
	4/26, 28, 29, 30	4	Grain	ND
	4/27	2	Grain	P
	5/1, 2, 5, 6, 7	5	Grain	P
	5/3, 4	2	Grain	ND
	5/8, 9, 12	3	Grain	ND
	5/10, 11, 13	3	Grain	P
	4/25-27	32	Green Chop	P
	4/28-30	6	Green Chop	P
	5/1-4	8	Green Chop	P
	5/5-8	8	Green Chop	P
	5/9-12	5	Green Chop	P
	5/13, 16, 19, 25	4	Green Chop	P
Coyote Summit, 30 mi W of Jct. US 93 & 25 on Hway 25	4/26	1	Natural	ND
25 mi W Jct. 93 & 25 on Hway 25	4/26	1	Natural	P
20 mi W Jct. 93 & 25 on Hway 25	4/26	1	Natural	P

P -positive
ND-not detectable

Appendix III. Vegetation Sampling Data (continued)

Location	Date Collected	No. of Samples	Type	Fresh fission Products
Hancock Summit, 15 mi W Jct. 93 & 25 on Hway 25	4/26	1	Natural	P
10 mi W Jct. 93 & 25 on Hway 25	4/26	1	Natural	P
5 mi W Jct 93 & 25 on Hway 25	4/26	1	Natural	P
Jct. of US 93 & Hway 25, Hiko, Nevada	4/26	2	Natural	P
5 mi E Jct 93 & 25 on US 93	4/26	1	Natural	P
10 mi E Jct 93 & 25 on US 93	4/26	1	Natural	P
15 mi E Jct 93 & 25 on US 93	4/26	1	Natural	P
20 mi E Jct 93 & 25 on US 93	4/26	1	Natural	P
Delamar Jct., 25 mi E of Jct 93 & 25 on US 93	4/26	1	Natural	P
30 mi E Jct 93 & 25 on US 93	4/26	1	Natural	P
35 mi E Jct 93 & 25 on US 93	4/26	1	Natural	P
40 mi E Jct 93 & 25 on US 93	4/26	1	Natural	P
Panaca, Nevada				
C & G Ranch	4/27,28	2	Green Chop	ND
	4/29,30 & 5/1	3	Hay	ND
E. Deck Ranch	4/26	1	Hay	P
	4/26	1	Green Chop	P
	4/27	1	Grass	P
	4/27,29,30	3	Hay	ND
	4/29,30	1	Grass	ND
	4/30	1	Pasture	P
	5/1	1	Grass	ND

P -positive
ND-not detectable

Appendix III. Vegetation Sampling Data (continued)

Location	Date Collected	No. of Samples	Type	Fresh fission Products
NW side of Panaca	4/27	1	Natural	P
Panaca, 5 mi N on Delmue Ranch	4/30 & 5/1	2	Natural	P
5 mi N of Panaca on US 93	4/30	1	Natural	P
5 mi N of Panaca on US 93	5/1	1	Natural	P
5 mi E of Panaca on Hway 25	4/27,28,30	3	Natural	ND
5 mi E of Panaca on Hway 25	4/29 & 5/1	2	Natural	P
10 mi E of Panaca on Hway 25	4/27,29 & 5/1	3	Natural	P
10 mi E of Panaca on Hway 25	4/28,30	2	Natural	ND
15 mi E of Panaca on Hway 25	4/28,29	2	Natural	ND
Pioche, Nevada				
Delmue Ranch	4/27,30	2	Hay	P
	4/27,29	2	Pasture	P
	4/28 & 5/1	3	Natural	P
	5/1	1	Hay	ND
Horlacher Ranch	4/27-30	4	Natural	P
	4/27-30	4	Hay	ND
	5/1	1	Natural	P
	5/1	1	Hay	ND
Rose Valley Ranch	4/26,27	2	Hay	P
	4/26	1	Pasture	P
	4/27,28,29	4	Natural	P
5 mi N or Pioche on US 93	4/27,28	2	Natural	P
10 mi N of Pioche on US 93	4/27,28	2	Natural	P
15 mi N of Pioche on US 93	4/28	1	Natural	P
20 mi N of Pioche on US 93	4/28	1	Natural	P

P -positive
ND-not detectable

Appendix III. Vegetation Sampling Data (continued)

Location	Date Collected	No. of Samples	Type	Fresh fission Products
25 mi N of Pioche on US 93	4/28	1	Natural	P
30 mi N of Pioche on US 93	4/28	1	Natural	P
35 mi N of Pioche on US 93	4/28	1	Natural	P
40 mi N of Pioche on US 93	4/28	1	Natural	P
45 mi N of Pioche on US 93	4/28	1	Natural	ND
50 mi N of Pioche on US 93	4/28	1	Natural	P
55 mi N of Pioche on US 93	4/28	1	Natural	P
Delmue Ranch road, Pioche	4/29	1	Natural	P
2 mi S of Delmue Ranch Pioche	4/27	1	Natural	P
5 mi S of Delmue Ranch Pioche	4/28 & 5/1	2	Natural	P
5 mi N of Delmue Ranch Pioche	4/29 & 5/1	2	Natural	P
10 mi N of Delmue Rn., Pioche	4/29 & 5/1	1	Natural	P
3.5 mi E of Pioche	5/1	1	Natural	P
5 mi E of Pioche	4/29, 30 & 5/1	3	Natural	P
10 mi E of Pioche	4/29, 30 & 5/1	3	Natural	P
Ursine, Nevada				
Burnt Cabin Ranch	5/1	1	Natural	P
Donahue Ranch	4/28	1	Pasture	P
	4/29	1	Hay	P
	5/2, 3, 5, 6, 10	5	Pasture	P
	5/4	1	Pasture	ND
Lytle Ranch	4/26	1	Pasture	P
	4/27-30	4	Hay	ND
	5/1	1	Hay	ND

P -positive
ND-not detectable

Appendix III. Vegetation Sampling Data (continued)

Location	Date Collected	No. of Samples	Type	Fresh fission Products
1/4 mi W of Ursine	4/28, 29, 30	3	Natural	P
1/4 mi W of Ursine	5/1	1	Natural	P
5 mi W of Ursine	4/28	1	Natural	P
10 mi W of Ursine	4/28	1	Natural	P
5 mi N of Ursine	4/27-30	4	Natural	P
5 mi N of Ursine	5/1	1	Natural	P
6.5 mi N of Ursine	4/27	1	Natural	P
7.0 mi N of Ursine	4/26	1	Natural	P
8.5 mi N of Ursine	4/27	1	Natural	P
10 mi N of Ursine	4/28, 29 & 5/1	3	Natural	P
15 mi N of Ursine	4/29 & 5/1	2	Natural	P
20 mi N of Ursine	4/29 & 5/1	2	Natural	P
Meadow Valley Reservoir Ursine	4/30	1	Natural	P
1/2 mi W of Fredonia, Arizona	5/1	1	Natural	ND
8 mi W of Fredonia, Ariz.	5/1	1	Natural	ND
Moccasin, Arizona	4/30	1	Natural	ND
Mt. Trumbull, Arizona	5/2	1	Natural	ND
16 mi E of Mt. Trumbull	5/2	1	Natural	ND
Pipe Springs National Monument, Arizona	4/30	1	Natural	ND
5 mi S of Pipe Springs	5/2	1	Natural	ND
Matheson Dairy, Cedar City, Utah	4/27	1	Silage	ND
	4/27	1	Hay	ND
Gonders Ranch, Garrison, Utah	5/4	1	Hay	ND
	5/4	1	Natural	P
Airport, Kanab, Utah	5/1	1	Natural	ND
2 mi S of Mt. Carmel Jct., Utah	5/1	1	Natural	ND
R. Cox Dairy	4/27	1	Pasture	ND
St. George, Utah	4/27	1	Silage	ND
	4/27	1	Hay	ND

P -positive
ND-not detectable

Appendix IV. Complete Milk Sampling Data

Location	Date of Milking	Time of Day	pCi/l ^{131}I	^{133}I	^{137}Cs	^{89}Sr	^{90}Sr
Alamo, Nevada							
Frehner Dairy	4/25	PM	ND	80	30	ND	5
	4/26	AM	50	290	30	ND	5
	4/26	PM	50	430	ND	no chem	
	4/27	AM	30	190	30	no chem	
	4/27	PM	40	110	25	no chem	
	4/28	PM	ND	ND	ND	no chem	
	4/29	AM	50	40	30	no chem	
	4/29	PM	ND	ND	20	no chem	
	4/30	AM	ND	ND	30	no chem	
	4/30	PM	ND	ND	20	no chem	
	5/01	AM	ND	ND	15	no chem	
	5/01	PM	ND	ND	15	no chem	
	5/02	AM	ND	ND	ND	no chem	
	5/02	PM	ND	ND	ND	no chem	
	5/03	AM	ND	ND	ND	ND	5
	5/03	PM	ND	ND	40	no chem	
	5/04	AM	ND	ND	35	no chem	
	5/04	PM	ND	ND	25	no chem	
	5/05	AM	ND	ND	20	no chem	
	5/05	PM	ND	ND	15	no chem	
	5/06	AM	50	ND	10	no chem	
	5/06	PM	30	ND	20	no chem	
	5/07	AM	50	ND	20	no chem	
	5/07	PM	ND	ND	20	no chem	
	5/08	AM	50	ND	20	no chem	
	5/08	PM	50	ND	10	no chem	
	5/09	AM	ND	ND	10	no chem	
	5/09	PM	60	ND	20	no chem	
	5/10	AM	60	ND	25	no chem	
	5/11	AM	ND	ND	ND	no chem	
	5/12	AM	ND	ND	ND	no chem	
	5/13	AM	ND	ND	15	ND	2
L. Lee Dairy	4/25	PM	90	280	50	ND	5
	4/26	AM	600	340	65	no chem	
	4/26	PM	600	1900	ND	no chem	
	4/27	AM	1100	3600	ND	ND	5
	4/27	PM	980	2500	ND	ND	5

Appendix IV. Complete Milk Sampling Data(continued)

Location	Date of Milking	Time of Day	pCi/l ^{131}I	^{133}I	^{137}Cs	^{89}Sr	^{90}Sr
Alamo, Nevada							
L. Lee Dairy (continued)	4/28	AM	800	1400	ND	ND	6
	4/28	PM	1400	1700	ND	ND	6
	4/29	AM	800	730	ND	ND	6
	4/29	PM	760	540	ND	ND	6
	4/30	AM	440	260	ND	ND	4
	4/30	PM	530	210	ND	ND	4
	5/01	AM	630	190	ND	ND	5
	5/01	PM	610	150	ND	ND	5
	5/02	AM	460	ND	60	ND	7
	5/02	PM	520	ND	65	ND	7
	5/03	AM	450	ND	35	ND	6
	5/03	PM	450	ND	40	ND	6
	5/04	AM	300	ND	55	ND	5
	5/04	PM	340	ND	60	ND	5
	5/05	AM	290	ND	60	no chem	
	5/05	PM	260	ND	55	no chem	
	5/06	AM	200	ND	55	no chem	
	5/06	PM	220	ND	50	no chem	
	5/07	AM	200	ND	50	no chem	
	5/07	PM	220	ND	45	no chem	
	5/08	AM	130	ND	40	no chem	
	5/08	PM	150	ND	40	no chem	
	5/09	AM	210	ND	45	ND	8
	5/25	PM	60	ND	15	5	4
	6/07	PM	20	ND	15	5	5
	6/13	AM	NA*	NA	NA	15	2
	6/17	AM	ND	ND	ND	ND	5
	6/20	AM	20	ND	20	ND	3
	7/07	AM	NA	NA	20	NA	NA
	7/14	AM	ND	ND	25	5	1
	7/22	AM	ND	ND	10	ND	4
	7/27	AM	ND	ND	10	ND	3
	8/03	AM	ND	ND	10	ND	2
Mann Ranch	4/30	PM	ND	ND	ND	no chem	
	5/01	AM	ND	ND	30	no chem	
	5/01	PM	ND	ND	20	no chem	
	5/02	AM	ND	ND	30	no chem	
	5/02	PM	ND	ND	ND	no chem	

Appendix IV. Complete Milk Sampling Data(continued)

Location	Date of Milking	Time of Day	pCi/l ^{131}I	^{133}I	^{137}Cs	^{89}Sr	^{90}Sr
Alamo, Nevada							
Mann Ranch (continued)	5/03	AM	ND	ND	35	no chem	
	5/03	PM	ND	ND	20	no chem	
	5/04	AM	ND	ND	20	no chem	
	5/04	PM	ND	ND	25	no chem	
	5/05	AM	ND	ND	ND	no chem	
Sharp Ranch	4/26	AM	1600	7300	ND	ND	5
	4/26	PM	1000	5500	ND	no chem	
	4/27	AM	2000	7800	ND	no chem	
	4/27	PM	840	2400	ND	no chem	
	4/28	AM	2100	5100	ND	5	3
	4/28	PM	570	840	45	5	3
	4/29	AM	1800	1800	ND	no chem	
	4/30	AM	1300	650	90	no chem	
	4/30	PM	1500	480	110	5	3
	5/01	AM	1200	320	160	no chem	
	5/01	PM	780	180	80	no chem	
	5/02	AM	800	110	80	5	5
	5/03	AM	570	ND	30	5	4
	5/04	AM	520	ND	60	5	4
	5/05	AM	430	ND	65	no chem	
	5/05	PM	270	ND	50	no chem	
	5/06	AM	250	ND	70	no chem	
	5/07	AM	190	ND	30	no chem	
	5/08	AM	190	ND	40	no chem	
	5/09	AM	120	ND	20	no chem	
	5/10	AM	ND	ND	25	ND	5
	5/11	AM	ND	ND	20	ND	5
	5/12	AM	60	ND	25	ND	6
	5/13	AM	80	ND	30	ND	7
	5/25	AM	50	ND	20	25	5
Leo Stewart Dairy	4/25	PM	70	240	40	ND	6
	4/26	AM	60	280	45	no chem	
	4/26	PM	50	400	25	no chem	
	4/27	AM	270	850	45	ND	6
	4/27	PM	40	110	25	no chem	
	4/28	AM	190	400	ND	ND	8
	4/28	PM	220	270	25	no chem	

Appendix IV. Complete Milk Sampling Data(continued)

Location	Date of Milking	Time of Day	pCi/l ^{131}I	^{133}I	^{137}Cs	^{89}Sr	^{90}Sr
Alamo, Nevada							
Leo Stewart Dairy (continued)	4/29	AM	100	100	45	no chem	
	4/29	PM	60	40	35	no chem	
	4/30	AM	60	ND	40	ND	7
	4/30	PM	30	ND	50	ND	7
	5/01	AM	ND	ND	30	no chem	
	5/02	AM	ND	ND	35	no chem	
	5/02	PM	ND	ND	ND	no chem	
	5/03	AM	ND	ND	35	ND	7
	5/03	PM	ND	ND	40	no chem	
	5/04	AM	130	ND	50	no chem	
	5/04	PM	100	ND	35	no chem	
	5/05	AM	90	ND	35	ND	4
	5/05	PM	ND	ND	45	no chem	
	5/06	AM	20	ND	40	no chem	
	5/06	PM	40	ND	50	no chem	
	5/07	AM	160	ND	55	no chem	
	5/07	PM	100	ND	15	no chem	
	5/08	AM	110	ND	30	no chem	
	5/08	PM	70	ND	35	no chem	
	5/09	AM	ND	ND	15	no chem	
	5/09	PM	ND	ND	20	no chem	
	5/10	AM	20	ND	30	no chem	
	5/11	AM	ND	ND	25	no chem	
	5/12	AM	ND	ND	20	no chem	
	5/13	AM	ND	ND	40	ND	9
M. K. Stewart Dairy	4/25	PM	ND	90	35	ND	9
	4/26	AM	30	130	15	no chem	
	4/26	PM	ND	60	ND	no chem	
	4/27	AM	170	630	50	no chem	
	4/27	PM	280	870	40	no chem	
	4/28	AM	340	610	ND	no chem	
	4/28	PM	590	770	ND	no chem	
	4/29	AM	500	470	45	no chem	
	4/29	PM	300	ND	50	no chem	
	4/30	AM	190	100	75	ND	4
	4/30	PM	150	70	ND	ND	4
	5/01	AM	80	20	45	no chem	
	5/01	PM	ND	ND	35	no chem	

Appendix IV. Complete Milk Sampling Data(continued)

Location	Date of Milking	Time of Day	pCi/l ^{131}I	^{133}I	^{137}Cs	^{89}Sr	^{90}Sr
Alamo, Nevada							
M. K. Stewart Dairy (continued)	5/02	AM	ND	ND	50	no chem	
	5/02	PM	30	ND	30	no chem	
	5/03	AM	ND	ND	30	no chem	
	5/03	PM	ND	ND	50	ND	3
	5/04	AM	ND	ND	ND	no chem	
	5/04	PM	ND	ND	ND	no chem	
	5/05	AM	ND	ND	ND	ND	3
	5/05	PM	ND	ND	35	no chem	
	5/06	AM	ND	ND	20	no chem	
	5/06	PM	ND	ND	30	no chem	
	5/07	AM	30	ND	35	no chem	
	5/07	PM	ND	ND	15	no chem	
	5/08	AM	ND	ND	15	no chem	
	5/08	PM	ND	ND	25	no chem	
	5/09	AM	ND	ND	15	no chem	
	5/09	PM	ND	ND	10	no chem	
	5/10	AM	ND	ND	20	no chem	
	5/11	AM	ND	ND	25	no chem	
	5/12	AM	80	ND	20	no chem	
	5/13	AM	40	ND	15	ND	4
Wright Dairy	4/25	PM	ND	100	10	ND	3
	4/26	AM	50	330	45	ND	3
	4/26	PM	30	170	20	no chem	
	4/27	AM	ND	110	20	no chem	
	4/27	PM	ND	ND	ND	no chem	
	4/28	AM	ND	ND	10	no chem	
	4/28	PM	30	ND	15	no chem	
	4/29	AM	ND	ND	35	no chem	
	4/29	PM	ND	ND	25	no chem	
	4/30	AM	ND	ND	25	no chem	
	4/30	PM	ND	ND	ND	ND	3
	5/01	AM	ND	ND	ND	no chem	
	5/01	PM	ND	ND	15	no chem	
	5/02	AM	20	ND	30	no chem	
	5/03	PM	ND	ND	10	no chem	
	5/04	AM	ND	ND	ND	no chem	

Appendix IV. Complete Milk Sampling Data(continued)

Location	Date of Milking	Time of Day	pCi/l ^{131}I	^{133}I	^{137}Cs	^{89}Sr	^{90}Sr
Caliente, Nevada							
Charlton Ranch	4/28	PM	130	ND	85	no chem	
	4/29	AM & PM	ND	ND	10	no chem	
	4/30	AM & PM	ND	ND	15	no chem	
	5/01	PM	ND	ND	25	no chem	
	5/04	AM	ND	ND	20	no chem	
	5/06	AM	ND	ND	10	no chem	
Oxborrow Ranch	4/30	AM	ND	ND	25	no chem	
	5/01	AM	ND	ND	25	no chem	
	5/03	AM	ND	ND	ND	no chem	
	5/05	AM	ND	ND	ND	ND	4
	5/07	AM	ND	ND	30	no chem	
	5/09	AM	ND	ND	15	no chem	
Raymond Ranch	4/30	AM	100	500	ND	no chem	
	5/01	AM	ND	ND	40	no chem	
	5/02	AM	70	ND	15	no chem	
	5/03	AM	50	ND	35	no chem	
	5/04	AM	ND	ND	ND	ND	10
	5/08	AM	ND	ND	15	ND	3
	5/10	AM	ND	ND	15		
Tennille Ranch	4/29	PM	40	20	15	ND	5
	4/30	PM	ND	ND	ND	no chem	
	5/01	PM	50	ND	45	no chem	
	5/03	AM	ND	ND	ND	ND	3
	5/04	AM	20	ND	10	no chem	
	5/06	AM	ND	ND	15	no chem	
	5/08	AM	ND	ND	15	no chem	
	5/10	AM	ND	ND	15	no chem	
Young Ranch	4/25	PM	ND	ND	25	no chem	
	4/27	AM	30	90	30	no chem	
	4/28	AM	30	70	30	no chem	
	4/29	PM	ND	ND	ND	no chem	
	4/30	PM	30	ND	15	no chem	
	5/03	AM	ND	ND	ND	ND	4
	5/05	AM	ND	ND	ND	no chem	
	5/07	AM	ND	ND	25	no chem	
	5/10	AM	ND	ND	15	no chem	

Appendix IV. Complete Milk Sampling Data(continued)

Location	Date of Milking	Time of Day	pCi/l ^{131}I	^{133}I	^{137}Cs	^{89}Sr	^{90}Sr
Elgin, Nevada							
Blue Ranch	4/28	PM	ND	ND	35	no chem	
	4/29	PM	ND	ND	40	no chem	
	4/30	PM	ND	ND	40	no chem	
	5/01	PM	ND	ND	55	no chem	
	5/04	AM	ND	ND	55	no chem	
Hiko, Nevada							
Davis Ranch	4/26	PM	1800	7100	ND	5	3
	4/27	PM	3500	7800	ND	no chem	
	4/28	PM	2900	3500	ND	15	4
	4/29	PM	2000	1200	ND	20	4
	4/30	PM	2200	1100	ND	no chem	
	5/01	PM	1700	620	ND	no chem	
	5/02	PM	3000	650	ND	no chem	
	5/03	PM	2300	570	ND	50	7
	5/04	PM	1800	260	ND	35	5
	5/05	PM	970	ND	ND	no chem	
	5/06	PM	700	ND	ND	no chem	
	5/07	PM	510	ND	ND	no chem	
	5/08	PM	350	ND	ND	no chem	
	5/09	PM	240	ND	45	20	5
	5/10	PM	240	ND	75	15	7
	5/11	PM	130	ND	60	10	6
	5/12	PM	130	ND	80	10	5
	5/25	PM	80	ND	45		5
	6/07	PM	ND	ND	ND	15	2
	6/14	AM	ND	ND	ND	20	8
	6/20	PM	ND	ND	10	15	6
	6/29	AM	NA	NA	NA	10	5
	7/05	AM	NA	NA	30	5	3
	7/12	NA	NA	NA	30	5	3
	7/18	NA	70	ND	25	NA	NA
	7/26	PM	ND	ND	25	ND	4
Schofield Dairy	4/25	PM	320	1000	ND	ND	4
	4/26	AM	1900	6100	ND	5	4
	4/26	PM	3300	20,000	ND	5	4
	4/27	AM	4400	15,000	ND	10	3

Appendix IV. Complete Milk Sampling Data(continued)

Location	Date of Milking	Time of Day	pCi/l ^{131}I	^{133}I	^{137}Cs	^{89}Sr	^{90}Sr
Schofield Dairy (continued)	4/27	PM	4800	12,000	ND	no chem	
	4/28	AM	4000	6,700	ND	10	3
	4/28	PM	3700	4,700	ND	10	3
	4/29	AM	1500	1,400	ND	ND	4
	4/29	PM	1000	730	ND	ND	4
	4/30	AM	500	290	ND	ND	5
	4/30	PM	450	150	ND	ND	5
	5/01	AM	250	70	160	ND	5
	5/01	PM	140	40	ND	ND	5
	5/02	AM	130	ND	30	ND	5
	5/02	PM	100	ND	40	ND	5
	5/03	AM	80	ND	60	ND	5
	5/03	PM	70	ND	30	ND	5
	5/04	AM	ND	ND	30	ND	5
	5/04	PM	30	ND	20	ND	5
	5/05	AM	ND	ND	15	no chem	
	5/05	PM	40	ND	30	no chem	
	5/06	AM	40	ND	25	no chem	
	5/06	PM	60	ND	30	no chem	
	5/07	AM	30	ND	35	ND	11
	5/07	PM	ND	ND	25	no chem	
	5/08	AM	50	ND	35	no chem	
	5/08	PM	40	ND	20	no chem	
	5/13	PM	ND	ND	25	ND	5
Las Vegas, Nevada							
Anderson Dairy #1 (Milk from Hidden Valley, Nevada)	4/26	AM	ND	ND	25	no chem	
	4/28	AM	ND	ND	20	no chem	
	4/29	AM	ND	ND	25	no chem	
	4/30	AM	ND	ND	25	no chem	
Anderson Dairy #2 (Milk from St. George, Utah)	4/26	AM	ND	ND	ND	no chem	
	4/28	AM	ND	ND	10	no chem	
	4/29	AM	ND	ND	ND	no chem	
	5/01	PM	ND	ND	50	no chem	
	5/03	PM	ND	ND	25	no chem	
	5/05	PM	ND	ND	20	no chem	
	5/07	PM	ND	ND	25	no chem	
	5/09	PM	ND	ND	30	no chem	

Appendix IV. Complete Milk Sampling Data(continued)

Location	Date of Milking	Time of Day	pCi/l ^{131}I	^{133}I	^{137}Cs	^{89}Sr	^{90}Sr
Las Vegas, Nevada							
Anderson Dairy #3	4/25	AM	ND	ND	10	no chem	
(Milk from Mesquite,	4/28	AM	ND	ND	20	no chem	
Nev., Logandale,	4/28	PM	ND	ND	30	no chem	
Nev., and Miners-	4/29	PM	ND	ND	15	no chem	
ville, Utah)	5/01	PM	ND	ND	20	no chem	
	5/02	PM	ND	ND	35	ND	7
	5/03	PM	ND	ND	15	no chem	
	5/04	PM	ND	ND	35	no chem	
	5/05	PM	ND	ND	20	no chem	
	5/07	PM	ND	ND	15	no chem	
	5/08	PM	ND	ND	30	no chem	
	5/09	PM	ND	ND	20	no chem	
Anderson Dairy #4	4/28	AM	ND	ND	30	no chem	
(Milk from Alamo,	4/30	AM	ND	ND	ND	no chem	
Nev.)	5/01	PM	ND	ND	30	no chem	
	5/02	AM	60	ND	40	no chem	
	5/02	PM	ND	ND	ND	no chem	
	5/04	AM	ND	ND	ND	no chem	
	5/04	PM	50	ND	30	no chem	
	5/05	AM	ND	ND	30	no chem	
	5/06	AM	ND	ND	20	no chem	
	5/06	PM	ND	ND	25	no chem	
	5/07	AM	ND	ND	30	no chem	
	5/08	AM	ND	ND	25	no chem	
	5/08	PM	60	ND	10	ND	5
	5/09	AM	ND	ND	30	no chem	
	5/10	AM	ND	ND	25	ND	5
	5/10	PM	30	ND	25	no chem	
	5/12	PM	ND	ND	20	no chem	
	5/14	PM	ND	ND	20	no chem	
	5/16	PM	100	ND	15	no chem	
	5/19	AM	100	ND	20	no chem	
Anderson Dairy #5 (Processed Milk)	5/02	AM	ND	ND	10	no chem	

Appendix IV. Complete Milk Sampling Data(continued)

Location	Date of Milking	Time of Day	pCi/l ^{131}I	^{133}I	^{137}Cs	^{89}Sr	^{90}Sr
Las Vegas, Nevada							
Arden Dairy	4/26	PM	ND	ND	10	no chem	
	4/28	AM	ND	ND	ND	no chem	
	4/29	AM	ND	ND	15	no chem	
	4/29	PM	ND	ND	15	no chem	
	4/30	AM	ND	ND	30	no chem	
	5/01	AM	ND	ND	ND	no chem	
	5/02	AM	ND	ND	30	no chem	
	5/03	AM	ND	ND	25	no chem	
Meadow Gold Dairy	4/29	PM	ND	ND	30	no chem	
	5/02	AM	ND	ND	10	no chem	
Vegas Valley Farms	4/26	AM	ND	ND	15	no chem	
	4/28	AM	ND	ND	30	no chem	
Lund, Nevada							
McKenzie Dairy	4/24	PM	ND	ND	30	no chem	
	4/26	AM	ND	ND	20	no chem	
	4/27	AM	ND	ND	30	no chem	
	4/28	AM	ND	ND	35	no chem	
	4/29	AM	ND	ND	20	no chem	
	5/05	AM	ND	ND	30	no chem	
Panaca, Nevada							
C & G Ranch	4/28	AM	ND	ND	ND	no chem	
	4/29	PM	ND	ND	35	no chem	
	4/30	PM	ND	ND	70	no chem	
	5/02	AM	ND	ND	90	no chem	
E. Deck Ranch	4/26	AM	50	160	55	no chem	
	4/27	AM	70	220	60	no chem	
	4/28	AM	ND	ND	35	no chem	
	4/29	AM	ND	ND	35	no chem	
	4/30	AM	ND	ND	30	no chem	
	5/01	AM	ND	ND	40	no chem	
	5/02	AM	ND	ND	60	no chem	

Appendix IV. Complete Milk Sampling Data(continued)

Location	Date of Milking	Time of Day	pCi/l ^{131}I	^{133}I	^{137}Cs	^{89}Sr	^{90}Sr
Panaca, Nevada							
K. Lee Ranch	4/26	AM	ND	ND	15	no chem	
	4/27	AM	20	210	ND	no chem	
	4/30	AM	50	20	35	no chem	
	4/30	PM	170	60	40	no chem	
	5/02	AM	160	ND	65	no chem	
	5/03	AM	120	ND	40	no chem	
	5/04	AM	100	ND	50	no chem	
	5/05	AM	ND	ND	10	no chem	
	5/06	AM	50	ND	30	no chem	
	5/07	AM	ND	ND	25	no chem	
	5/08	AM	ND	ND	15	no chem	
	5/09	AM	ND	ND	30	no chem	
	5/10	AM	ND	ND	15	no chem	
Pioche, Nevada							
Delmue Ranch	4/27	AM	30	ND	60	no chem	
Horlacher Ranch	4/27	AM	ND	ND	50	no chem	
	4/28	AM	ND	ND	20	no chem	
	4/29	AM	ND	ND	50	no chem	
	4/30	AM	ND	ND	25	no chem	
	5/01	AM	ND	ND	20	no chem	
	5/03	AM	ND	ND	45	no chem	
Rose Valley Ranch	4/26	PM	ND	ND	15	no chem	
Ursine, Nevada							
Donahue Ranch	4/28	PM	1100	1200	45	no chem	
	5/03	AM	320	ND	20	ND	15
	5/04	AM	ND	ND	40	ND	19
	5/05	AM	170	ND	25	no chem	
	5/06	AM	140	ND	10	no chem	
	5/10	AM	70	ND	15	ND	14
Lytle Ranch	4/27	AM	ND	ND	20	no chem	
	4/28	AM	ND	ND	30	no chem	
	4/29	AM	ND	ND	ND	no chem	
	4/30	AM	ND	ND	30	no chem	
	5/01	AM	ND	ND	30	no chem	

Appendix IV. Complete Milk Sampling Data(continued)

Location	Date of Milking	Time of Day	pCi/l ^{131}I	^{133}I	^{137}Cs	^{89}Sr	^{90}Sr
Ursine, Nevada							
Lytle Ranch	5/02	AM	ND	ND	30	no chem	
(continued)	5/03	AM	ND	ND	50	no chem	
McCrosky Ranch	5/01	AM	ND	ND	65	no chem	
	5/02	AM	ND	ND	50	no chem	
	5/04	AM	ND	ND	40	no chem	
Fredonia, Arizona							
M. Button Ranch	4/30	PM	ND	ND	ND	no chem	
	5/01	AM	ND	ND	ND	ND	9
	5/02	AM	70	ND	45	ND	10
	5/04	PM	ND	ND	ND	no chem	
	5/05	AM	ND	ND	10	no chem	
Moccasin, Arizona							
O. Johnson Ranch	4/30	PM	ND	ND	40	no chem	
	5/01	AM	ND	ND	ND	no chem	
	5/02	AM	ND	ND	55	no chem	
Mt. Trumbull, Ariz.							
O. Bundy Ranch	5/02	AM	20	ND	35	ND	6
Barstow, Calif.							
Hills Dairy	5/04	PM	ND	ND	15	no chem	
	5/05	AM	ND	ND	25	no chem	
	5/06	AM	ND	ND	ND	no chem	
	5/08	AM	ND	ND	10	no chem	
	5/09	AM	ND	ND	10	no chem	
	5/10	AM	ND	ND	ND	ND	1
	5/16	AM	ND	ND	ND	no chem	
Brawley, Calif.							
Dateland Dairy	5/04	AM	ND	ND	ND	no chem	
	5/05	AM	ND	ND	10	no chem	
	5/07	AM	ND	ND	ND	no chem	
Escondido, Calif.							
Bernard Dairy	5/04	AM	ND	ND	10	ND	2
	5/05	AM	ND	ND	15	no chem	
	5/07	AM	ND	ND	10	no chem	

Appendix IV. Complete Milk Sampling Data(continued)

Location	Date of Milking	Time of Day	pCi/l				
			^{131}I	^{133}I	^{137}Cs	^{89}Sr	^{90}Sr
Los Angeles, Calif.							
Jessup Farms	5/05	AM	ND	ND	15	ND	2
	5/06	AM	ND	ND	25	no chem	
	5/07	AM	ND	ND	20	no chem	
	5/08	AM	ND	ND	20	no chem	
	5/09	AM	ND	ND	25	no chem	
	5/10	AM	ND	ND	10	no chem	
	5/11	AM	ND	ND	20	no chem	
Newhall, Calif.							
Burbank Creamery	5/05	AM	ND	ND	60	no chem	
	5/06	AM	ND	ND	ND	no chem	
Riverside, Calif.							
Orange Crest Dairy	5/04	PM	ND	ND	10	ND	2
	5/05	PM	ND	ND	15	no chem	
	5/06	PM	ND	ND	15	no chem	
	5/07	PM	ND	ND	10	no chem	
	5/08	PM	ND	ND	20	no chem	
	5/09	PM	ND	ND	ND	no chem	
Alamosa, Colorado							
Alamosa Milk Co.	4/29	AM	ND	ND	20	no chem	
	4/30	AM	ND	ND	20	no chem	
	5/03	AM	ND	ND	20	no chem	
	5/04	AM	ND	ND	10	no chem	
Brush, Colorado							
McLagan Bros.	4/27	AM	ND	ND	10	no chem	
Creamery	4/28	AM	ND	ND	55	no chem	
	4/29	AM	ND	ND	45	no chem	
	4/30	PM	ND	ND	ND	no chem	
	5/01	PM	ND	ND	ND	no chem	
	5/02	PM	ND	ND	30	no chem	
Canon City, Colo.							
Monarch Dairy, Inc.	4/26	PM	ND	ND	15	no chem	
	4/29	AM	ND	ND	15	no chem	
Colorado Springs, Colo.							
Senton Dairy Co.	4/28	AM	ND	ND	30	no chem	
	4/30	AM	ND	ND	10	no chem	

Appendix IV. Complete Milk Sampling Data(continued)

Location	Date of Milking	Time of Day	pCi/l ^{131}I	^{133}I	^{137}Cs	^{89}Sr	^{90}Sr
Senton Dairy Co.	5/01	AM	ND	ND	20	ND	1
(continued)	5/02	AM	ND	ND	25	no chem	
Craig, Colorado							
Yampa Valley Dairy	4/28	PM	ND	ND	10	no chem	
	5/01	PM	ND	ND	30	no chem	
	5/04	PM	ND	ND	15	no chem	
	5/08	PM	ND	ND	20	no chem	
	5/09	PM	ND	ND	20	no chem	
	5/11	PM	ND	ND	30	no chem	
Delta, Colorado							
Arden Meadow Gold	4/27	AM	ND	ND	ND	no chem	
Dairy	4/28	PM	ND	ND	30	no chem	
	4/29	PM	ND	ND	25	no chem	
Durango, Colo.							
Clover Rich Dairy	4/28	PM	ND	ND	15	no chem	
	4/29	PM	ND	ND	20	no chem	
	4/30	PM	ND	ND	15	no chem	
	5/01	AM	ND	ND	20	no chem	
	5/02	PM	ND	ND	10	ND	14
	5/03	AM	ND	ND	25	no chem	
Ft. Collins, Colo.							
Poudre Valley Cream-	4/27	AM	ND	ND	35	no chem	
ery	4/28	AM	ND	ND	40	no chem	
	4/29	AM	ND	ND	40	no chem	
	4/30	AM	ND	ND	ND	no chem	
	5/01	AM	ND	ND	25	ND	10
	5/02	AM	ND	ND	35	ND	10
	5/03	AM	ND	ND	45	no chem	
	5/04	AM	ND	ND	30	no chem	
Glenwood Springs, Colo.							
Glenwood Creamery	4/26	PM	ND	ND	40	no chem	
	4/27	AM	ND	ND	35	no chem	
	4/28	AM	ND	ND	40	no chem	
	4/29	PM	ND	ND	35	no chem	
	5/03	AM	ND	ND	40	no chem	
Grand Junction, Colo.							
Clymer's Rose Glen	4/26	AM	ND	ND	ND	no chem	
Dairy	4/27	PM	ND	ND	20	no chem	
	4/29	AM	ND	ND	15	ND	10

Appendix IV. Complete Milk Sampling Data(continued)

Location	Date of Milking	Time of Day	pCi/l				
			^{131}I	^{133}I	^{137}Cs	^{89}Sr	^{90}Sr
Grand Junction, Colo.							
Clymer's Rose Glen	5/01	PM	ND	ND	ND	no chem	
Dairy	5/02	PM	ND	ND	10	no chem	
Monte Vista, Colo.							
Sunrise Creamery	4/29	AM	ND	ND	10	no chem	
Rocky Ford, Colo.							
Rocky Ford Coop.	4/27	AM	ND	ND	ND	ND	6
Creamery	4/28	AM	ND	ND	20	no chem	
	4/29	AM	ND	ND	ND	no chem	
	4/30	AM	ND	ND	ND	no chem	
	4/30	PM	ND	ND	15	no chem	
	5/02	AM	ND	ND	20	no chem	
	5/02	PM	ND	ND	ND	no chem	
Trinidad, Colo.							
Petramala Dairy	4/27	AM	ND	ND	ND	no chem	
	4/28	PM	ND	ND	10	no chem	
	4/29	PM	ND	ND	10	no chem	
	4/30	AM	ND	ND	ND	no chem	
	5/01	AM	ND	ND	75	no chem	
	5/03	PM	ND	ND	30	no chem	
Blackfoot, Idaho							
Cammack Dairy	4/26	PM	ND	ND	10	no chem	
	4/27	AM	ND	ND	25	no chem	
	4/28	AM	ND	ND	65	no chem	
Buhl, Idaho							
Smith's Dairy Products	4/26	PM	ND	ND	25	no chem	
Inc.	4/27	AM	ND	ND	45	no chem	
	4/28	AM	ND	ND	25	no chem	
	4/29	AM	ND	ND	55	no chem	
	4/30	AM	ND	ND	20	no chem	
	5/02	AM	ND	ND	20	no chem	
Burley, Idaho							
Wymore Dairy	4/26	AM	ND	ND	25	no chem	
	4/27	AM	ND	ND	45	no chem	
	4/28	AM	ND	ND	55	no chem	

Appendix IV. Complete Milk Sampling Data(continued)

Location	Date of Milking	Time of Day	pCi/l				
			^{131}I	^{133}I	^{137}Cs	^{89}Sr	^{90}Sr
Burley, Idaho	4/29	AM	ND	ND	40	no chem	
Wymore Dairy	4/30	AM	ND	ND	40	no chem	
(continued)	5/02	AM	ND	ND	55	no chem	
	5/03	AM	ND	ND	40	no chem	
Coeur d'Alene, Idaho	4/26	AM	ND	ND	65	no chem	
Coeur d'Alene	4/27	AM	ND	ND	70	no chem	
Creamery	4/28	PM	ND	ND	60	no chem	
	4/29	PM	ND	ND	80	no chem	
	4/30	PM	ND	ND	55	no chem	
Grangeville, Idaho	4/27	AM	ND	ND	75	no chem	
Grangeville	4/27	PM	ND	ND	10	ND	29
Creamery	4/29	AM	ND	ND	75	ND	15
	5/01	PM	ND	ND	70	ND	20
	5/02	PM	ND	ND	65	no chem	
	5/04	AM	ND	ND	70	no chem	
	5/04	PM	ND	ND	80	no chem	
Idaho Falls, Idaho	4/26	PM	ND	ND	50	no chem	
Wallace Dairy	4/29	AM	70	ND	30	no chem	
	5/02	AM	30	ND	55	ND	10
	5/10	AM	ND	ND	30	no chem	
	5/11	AM	ND	ND	35	no chem	
	5/13	AM	ND	ND	25	no chem	
	5/17	AM	ND	ND	40	no chem	
	5/18	AM	ND	ND	15	ND	13
Jerome, Idaho	4/26	PM	ND	ND	30	no chem	
Ida Gem Dairymen,	4/27	AM	ND	ND	ND	no chem	
Inc.	4/28	AM	ND	ND	10	no chem	
	4/29	AM	ND	ND	25	ND	10
	4/30	AM	ND	ND	35	no chem	
Lewiston, Idaho	4/25	PM	ND	ND	30	no chem	
Golden Grain Dairy	4/28	PM	ND	ND	ND	no chem	
Producers, Inc.	4/29	AM	ND	ND	ND	no chem	
	4/29	PM	ND	ND	35	no chem	
	5/01	AM	ND	ND	15	no chem	
	5/02	AM	ND	ND	45	no chem	

Appendix IV. Complete Milk Sampling Data(continued)

Location	Date of Milking	Time of Day	pCi/l ^{131}I	^{133}I	^{137}Cs	^{89}Sr	^{90}Sr
Mt. Home, Idaho							
Clover Hollow Dairy	4/26	AM	ND	ND	35	no chem	
Pocatello, Idaho							
Ward's Dairy	4/26	AM	ND	ND	40	no chem	
	4/27	AM	ND	ND	15	no chem	
	4/28	AM	ND	ND	15	no chem	
	4/29	AM	ND	ND	50	no chem	
	4/30	AM	ND	ND	35	ND	10
Beaver, Utah							
G. Robert's Dairy	4/26	PM	ND	ND	85	no chem	
	4/27	AM	ND	ND	45	no chem	
Cedar City, Utah							
Matheson Dairy	4/26	PM	ND	ND	40	no chem	
	4/27	AM	ND	ND	35	no chem	
	4/27	PM	ND	ND	10	no chem	
Meadow Gold Dairy	4/29	PM	ND	ND	15	ND	6
	5/02	AM	ND	ND	20	no chem	
	5/03	AM	ND	ND	10	no chem	
	5/03	PM	ND	ND	10	no chem	
	5/04	PM	ND	ND	55	no chem	
	5/05	PM	ND	ND	25	ND	8
	5/06	PM	ND	ND	45	no chem	
Garrison, Utah							
Gonder's Dairy	5/03	PM	ND	ND	20	no chem	
	5/04	AM	ND	ND	40	no chem	
	5/05	AM	ND	ND	40	no chem	
	5/06	AM	ND	ND	40	no chem	
Kanab, Utah							
J. Johnson Ranch	4/30	PM	ND	ND	45	ND	7
	5/01	AM	ND	ND	45	ND	8
	5/02	AM	ND	ND	65	ND	10
Minersville, Utah	4/30	AM	ND	ND	25	no chem	
Minersville Dairy	5/01	PM	ND	ND	50	no chem	
	5/02	AM	ND	ND	15	no chem	
	5/04	PM	ND	ND	25	no chem	

Appendix IV. Complete Milk Sampling Data(continued)

Location	Date of Milking	Time of Day	pCi/l ^{131}I	^{133}I	^{137}Cs	^{89}Sr	^{90}Sr
Mt. Pleasant, Utah	4/27	AM	ND	ND	35	no chem	
Brooklawn	4/28	AM	ND	ND	20	no chem	
Creamery	4/29	AM	ND	ND	20	no chem	
	5/01	AM	ND	ND	10	no chem	
	5/02	AM	ND	ND	50	ND	17
	5/02	PM	ND	ND	40	ND	17
	5/03	AM	ND	ND	10	no chem	
	5/04	AM	ND	ND	45	no chem	
Ogden, Utah							
Maple Leaf Dairy	4/27	AM	ND	ND	70	no chem	
	4/30	PM	ND	ND	ND	ND	4
	5/03	PM	ND	ND	40	no chem	
Orderville, Utah							
Chamberlain Ranch	5/01	AM	ND	ND	25	no chem	
	5/01	PM	ND	ND	10	ND	5
Richfield, Utah							
Ideal Dairy	4/29	PM	ND	ND	30	ND	5
	5/04	AM	ND	ND	40	no chem	
St. George, Utah							
R. Cox Dairy	4/26	PM	ND	ND	30	no chem	
	4/29	PM	ND	ND	25	no chem	
	4/30	PM	ND	ND	25	no chem	
	5/01	AM	ND	ND	25	no chem	
	5/03	AM	ND	ND	30	no chem	
	5/04	AM	ND	ND	ND	no chem	
	5/06	AM	ND	ND	30	no chem	
St. George Ice Co.	4/30	AM	ND	ND	ND	no chem	
	5/01	AM	ND	ND	20	no chem	
	5/02	AM	ND	ND	25	no chem	
Salt Lake City, Utah	4/25	PM	ND	ND	15	ND	10
Salt Lake Dairy Pool	4/28	AM	ND	ND	45	ND	14
	4/29	AM	ND	ND	20	ND	12
	4/29	PM	ND	ND	35	no chem	
	5/02	AM	ND	ND	50	no chem	
	5/03	AM	ND	ND	30	no chem	
	5/07	PM	ND	ND	45	no chem	

Appendix IV. Complete Milk Sampling Data(continued)

Location	Date of Milking	Time of Day	pCi/l ^{131}I	^{133}I	^{137}Cs	^{89}Sr	^{90}Sr
Smithfield, Utah	4/26	AM	ND	ND	30	no chem	
Cache Valley Dairy	4/29	AM	ND	ND	40	no chem	
Products	5/02	PM	ND	ND	ND	ND	17
	5/03	PM	ND	ND	25	no chem	
	5/04	PM	ND	ND	45	no chem	
Spanish Fork, Utah							
Town Pride Dairy	4/25	AM	ND	ND	ND	ND	9
	4/27	AM	ND	ND	40	no chem	
	4/28	AM	60	ND	85	no chem	
	4/29	AM	20	ND	30	ND	10
	4/30	PM	ND	ND	30	no chem	
	5/01	AM	ND	ND	30	no chem	
	5/02	AM	ND	ND	35	no chem	
	5/04	AM	ND	ND	45	no chem	
	5/06	AM	ND	ND	45	no chem	
Casper, Wyoming							
Meadow Gold Dairy	4/28	AM	ND	ND	25	no chem	
	4/28	PM	ND	ND	ND	no chem	
	4/29	AM	ND	ND	10	no chem	
	4/30	AM	ND	ND	ND	no chem	
	5/02	AM	ND	ND	10	no chem	
	5/04	AM	ND	ND	30	no chem	
	5/06	AM	ND	ND	35	no chem	
Cheyenne, Wyoming							
Dairy Gold Foods	4/25	PM	ND	ND	20	ND	11
	4/26	PM	ND	ND	15	no chem	
	4/27	PM	ND	ND	25	no chem	
	4/28	PM	ND	ND	ND	no chem	
	4/29	PM	ND	ND	20	no chem	
	5/01	PM	ND	ND	ND	no chem	
	5/02	PM	ND	ND	20	no chem	
	5/03	PM	ND	ND	20	no chem	
Powell, Wyoming	4/26	AM	ND	ND	35	no chem	
Cream of the Valley	4/26	PM	ND	ND	15	no chem	
Dairy	4/26	PM	ND	ND	50	no chem	
	4/27	AM	ND	ND	30	no chem	
	4/27	PM	ND	ND	30	no chem	

Appendix IV. Complete Milk Sampling Data(continued)

Location	Date of Milking	Time of Day	pCi/l ^{131}I	^{133}I	^{137}Cs	^{89}Sr	^{90}Sr
Powell, Wyoming	4/27	PM	ND	ND	15	no chem	
Cream of the Valley	4/29	AM	ND	ND	15	no chem	
Dairy (continued)	4/29	PM	ND	ND	20	no chem	
	4/30	PM	ND	ND	35	no chem	
	5/01	PM	ND	ND	10	no chem	
	5/02	PM	ND	ND	ND	no chem	
Rawlins, Wyoming	4/26	PM	ND	ND	30	no chem	
Wyoming Dairy	4/27	PM	ND	ND	30	no chem	
Products	4/29	PM	ND	ND	30	no chem	
	4/30	PM	ND	ND	ND	no chem	
	5/01	PM	ND	ND	25	no chem	
	5/02	PM	ND	ND	35	no chem	
	5/03	PM	ND	ND	45	ND	13
Riverton, Wyoming							
Morning Star Dairy	4/25	PM	ND	ND	ND	no chem	
	4/27	PM	ND	ND	30	no chem	
	4/29	PM	ND	ND	20	no chem	
Sheridan, Wyoming							
Jersey Creamery, Inc.	4/26	AM	ND	ND	40	no chem	
	4/27	AM	ND	ND	45	no chem	
	4/27	AM	ND	ND	30	no chem	
	4/28	AM	ND	ND	25	no chem	
	4/30	AM	ND	ND	15	no chem	

ND = Not detected. Minimum detectable levels are:
^{131}I - 20 pCi/l; ^{133}I - 20 pCi/l; ^{137}Cs - 10 pCi/l;
^{89}Sr - 5 pCi/l; ^{90}Sr - 1 pCi/l.

*NA = Data not available.